OCTOBER 25, 1954

NEWS ISSUE

Electrical World

Price 35 Cents

A McGRAW-HILL PUBLICATION

Keep informed on the financing that is making possible the rapid expansion of the industry by reading... page 62

Evans and Ihrig make double play for industry and medicine... page 42

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
Oct. 7	2.88	2.90	3.09	3.88	3.99	4.36	4.49	4.78	5.17
Sept. 30	2.88	2.90	3.10	3.89	3.99	4.38	4.50	4.80	5.19

EARNINGS

Company	Period Months	Ended	Net Income 1954	Net Income 1953	Earnings Per Common Share 1954	Earnings Per Common Share 1953
Arizona Public Service	12	Aug.	$4,564,000	$3,574,000	$1.53	$1.27
California-Pacific Utilities	12	Aug.	621,350	553,358	2.11(a)	2.01(a)
Consolidated Gas Electric Light & Power Co of Baltimore	8	Aug.	8,081,000	7,459,000	1.32(b)	1.32(b)
Dallas Power & Light	12	Aug.	5,520,406	4,973,363	-	- -

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF OCTOBER 7-13			
Bonds and Debentures			
Cleveland, Ohio—electric revenues due 1959-78	$5,000	various	1.20-2.40%
Eugene, Ore.—water and electric utility due 1959-78	1,000	various	1.20-2.35
Savannah Electric & Power—1st mtg 3¼% due 1984	5,000	102.52	3.12
Savannah Electric & Power—debs due 3¼% 1979	3,000	101.783	3.27
Central Louisiana Electric—conv debs 3½% due 1964 (being offered to common stockholders on the rate of $100 deb for each [illegible] common shs held [illegible] Oct. 4; offering [illegible] 27).	3,772	[illegible].99	3.50

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UNIVERSITY MICROFILMS IN
313 N 1 ST
ANN ARBOR MICH

"THE STORY OF LIGHT," produced in Holland for General Electric's public education program, is being released to commercial theaters, schools, customer groups this month. The movie will help spotlight Light's Diamond Jubilee, create goodwill for entire electric industry.

Can these educational programs help you in

Telling story of today's low-cost electricity

"75 YEARS' ENGINEERING PROGRESS," theme for G.E.'s latest ad in national magazines, is being previewed by Ralph P. Wagner, chairman, Electric Utilities Program of Light's Diamond Jubilee, and G.E.'s George Conway.

"FREEDOM AND POWER," designed to appeal to every type of audience, highlights the development of the electric power industry against an inspiring background of America's historic struggle for freedom.

Activities commemorating Light's Diamond Jubilee point to engineering progress in winning new friends for industry

The 75 years of electrical progress, that began the night Edison proved that the incandescent light was economically feasible, will pass in review before the entire American public this month. In helping to celebrate this milestone, General Electric, on behalf of the industry, is releasing a dramatic new movie, "The Story of Light."

MOVIES FEATURE PROGRESS

The new G-E film was produced in Holland and brings to the screen a new stop-motion puppet technique in picturing the history of light. In addition, G.E.'s "Freedom and Power," a movie that underscores the importance of economic liberties and America's electric power development, brings the heritage of Edison into new focus. At the same time, the Edison Electric Institute's outstanding film, "The Eager Minds," is stimulating broad appreciation for the research and ingenuity responsible for today's many electrical comforts.

AVAILABLE TO YOU

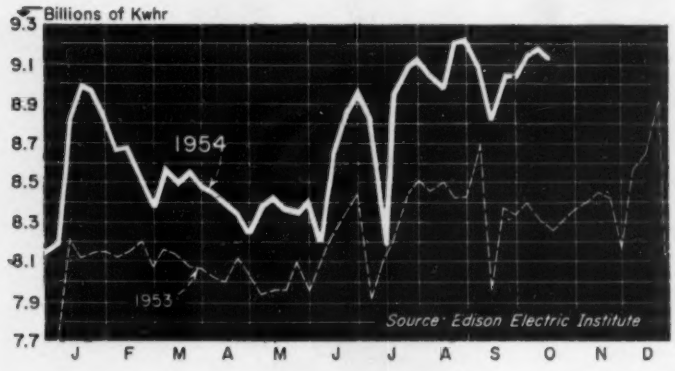
Movies, exhibits, publications, and a series of four-color ads telling the story of "electricity, today's greatest bargain," are part of the General Electric public education program designed to tell the stirring drama behind the electric industry's technological advances. Much of this material is available to you, to aid you in telling electricity's story as well as impressing your public with the vital role which the utility industry has played in the growth of America. An illustrated catalogue of publications, designed to reach teen-age America, can be obtained by writing to General Electric Company, Dept. 2-119, Schenectady 5, N. Y. For prints of the films discussed, contact General Electric Company, Sec. 301-254, Schenectady 5, N. Y.

MORE POWER TO AMERICA

GENERAL ELECTRIC

Electrical World

Vol 142 No 17 October 25, 1954



Output Week Ended Oct. 16—9,117,000,000 Kwhr

Per Cent Change from Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
Oct. 16	+10.3	+2.3	+5.7	+3.6	+7.0	+22.7	+16.9	−2.6	+7.6	+7.8
Oct. 9	+10.7	−0.1	+4.7	+3.2	+7.8	+24.0	+23.0	−2.9	+10.4	+5.7
Oct. 2	+8.8	+0.1	+3.7	+2.0	+4.0	+22.5	+12.3	−2.9	+4.4	+9.1

Seasonally Adjusted Index †173.9 Week Ago 175.5 Year Ago 157.8

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load ‡(Million Kw)	Aug.	79.7	78.2	74.3
Capacity (Million Kw)	Aug.	98.08	96.98	86.63
Production (Billion Kwhr)	Aug.	41.17	40.08	38.53
Hydro	Aug.	8.34	8.76	8.45
Fuel	Aug.	32.82	31.32	30.08
Fuel Consumption:				
Coal (Million Tons)	Aug.	9.83	9.40	9.71
Oil (Million Barrels)	Aug.	4.85	4.45	6.54
Gas (Billion Cu Ft)	Aug.	130.49	127.37	112.88
Sales (Billion Kwhr)	July	32.99	32.57	32.13
Residential	July	9.50	9.32	8.47
Commercial	July	6.52	6.03	5.81
Industrial	July	14.35	14.85	15.50
Other	July	2.62	2.36	2.35
Net Income Class A & B Companies ($ Million)	July	84.44	86.98	73.12
Estimated Dec. '54 Peak ‡(Million Kw)	July	88.1	88.1	91.9
Kwhr per Residential Customer (12 Month Average)	July	2,458	2,441	2,272
Revenue per Kwhr Residential Service (12 Month Average)	July	2.71¢	2.71¢	2.75¢
Canadian Production (Billion Kwhr)	July	5.48	5.67	5.18

Business Statistics

FRB Industrial Production Index†	Sept	126	124	135
Gross National Product Annual Rate ($ Billion)	2nd Qtr.	356.0	355.8	369.9
EW 4 Industry Production Index†	Sept.	117.0	115.4	124.9
ENR Construction Cost Index†	Oct.	134.6	134.3	128.0
BLS Consumer's Price Index	Aug.	115.0	115.2	115.0
NEMA Insulation Materials Sales Index†	Aug.	111	92	153
NEMA Electric Appliance Sales Index†	Aug.	91	88	90
NEMA Household Refrig. Sales Index†	Aug.	71	93	63

**Revised ‡Class 1 Systems †1947-49=100 ††1949=100

Published for 80 years for those engaged in the business of generating, transmitting, distributing, or applying electric power

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ELECTRICAL WORLD

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. Publication Office, 99-129 N. Broadway, Albany 1, N. Y. Executive, Editorial and Advertising Office, McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Executive Vice-President, Publications Division; Ralph R. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Electrical World—Subscription Service, 99-129 North Broadway, Albany 1, N. Y. or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are accepted only from executive, supervisory, and engineering personnel in electric utilities, manufacturing companies, and related fields. Position and company connection must be indicated on subscription orders.

Single copies 35¢. For the United States and possessions $6 a year, $9 for two years, $12 for three years. Canada, $7 for one year, $11 for two years, $14 for three years. (Canadian money, at par.) Other Western Hemisphere, and the Philippines, $15 for one year, $25 for two years, $30 for three years. All other countries $25 for one year, $40 for two years, $50 for three years. Entered as second-class matter, November 16, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in USA.

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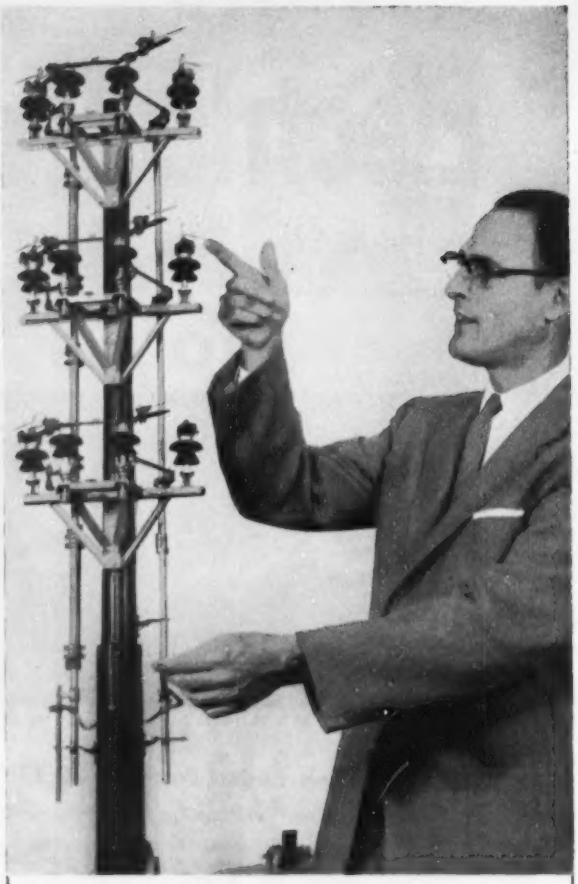
"GOABS® break miles of charging current with ease"...

Says L. R. (Les) Crane, Manager of Sales
Switching Equipment, A. B. Chance Company



On a model 2-Way Goabs, L. R. Crane demonstrates the "snap out" side break operation that helps break charging currents and keeps phase spacing requirements to a minimum.

Simplicity of construction, side break operation, and "snap out" arcing horns make GOABS* ideal for

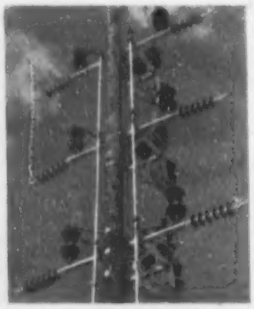
- 1. Sectionalizing or de-energizing long transmission or distribution lines.
- 2. Transferring loads from one source to another.
- 3. Interrupting transformer exciting currents.
- 4. Switching capacitor banks.

Substation switching, loop interconnections or sectionalizing can be accomplished from a single switching point when you use GOABS.

Phase to phase arcing is no problem for GOABS. In one charging current test, on 61.5 miles of 66 KV line, arcs did not exceed 14 inches and were broken in 3 to 4½ cycles. From this test, it's easy to see that long transmission lines can be safely de-energized with these Gang Operated Air Break Switches.

GOABS are convenient and economical to install and are available in 600 amperes, 15, 23, 34.5, 46 and 69 KV ratings.

Here's what linemen like about GOABS...



GOABS are easily installed, simple to operate and safe and easy to maintain. Each complete phase of the switch comes welded as a unit that can be pulled up and bolted to the pole. No assembly is necessary on the pole. Extra operations are eliminated. The photograph at left clearly shows the 180° free-climbing space that permits safe and easy maintenance.

Here's what management likes about GOABS...

The installation of GOABS has saved many utilities as much as 25% of what it cost them to install conventional air break switches. Such savings are possible because GOABS require *only* a single pole. Single-pole mounting not only eliminates the need for multi-pole structures, but eliminates so many extra installation operations that expensive line crew time is reduced to one fourth of what is normally required for installation on multi-pole structures.

Bulletin 601-A gives complete information. Write for your copy today!

*Gang Operated Air Break Switches (Formerly Matthews GOABS)

ABC INDUSTRIES

A·B·CHANCE CO.

CENTRALIA, MISSOURI · SAN FRANCISCO, CALIFORNIA

THE ELECTRICAL WEEK

The Issue's News Highlights . . . Government agencies concerned with Dixon-Yates contract give approval. SEC will rule on stock issuance after formal signing of contract.

Mississippi Power & Light's amended registration statement filed with SEC denies Stietenroth's charges point by point.

Hurricane Hazel, sweeping from Carolinas to Canada, did considerable damage to inland utilities.

Lake Thomas A. Edison in Sierra Nevada was dedicated last week by Southern California Edison's Pres Harold Quinton. Lake is formed by Vermillion Dam, most recent addition to Edison's Big Creek-San Joaquin River multipurpose hydro project. A bronze plaque, marking the ceremony, was placed beside the dam.

Enactment by 1955 Vermont legislature of a measure to assure the state of gaining "full benefits" from St Lawrence power project at Massena, N. Y., was urged by Sen George D. Aiken in addressing Washington Electric Cooperative meeting in Montpelier.

Harnessing of atomic power is not going to upset the economics of nation's electric utility industry, G. A. Price, president of Westinghouse Electric declared before American Bankers Convention last week in Atlantic City. He said the widespread and extensive use of atomic power for civilian purposes "is still some years away."

BPA plans to build 345-kv line from McNary Dam to BPA's Big Eddy substation near The Dalles, and from there to Ross substation at Vancouver.

U. S. electric utility industry reached 100 million kw of generating capacity on 75th anniversary of Edison's electric light (Oct. 21). It occurred when 156,250-kw No. 4 unit of Detroit Edison's new St Clair plant went into operation. John Edison Sloane, grandson of Thomas Edison, dedicated the plant.

In a NLRB election, employees of Pennsylvania W&P, Safe Harbor Water Power, and Susquehanna Transmission rejected IBEW-AFL as collective bargaining agent.

"Our company has always been and is now in favor of fair regulation," Mississippi P&L's Pres R. Baxter Wilson declared recently. He said the company "will welcome regulation on state level whenever all interested parties desire it."

Eighth edition of Abbott's National Electrical Code Handbook, revised to cover latest National Electrical Code, will be published in November. For copy write, McGraw-Hill's Book Information Service, 327 West 41st St., N. Y. 36; price $7.50.

Off the Washington Wire . . . Libby Dam project is stalled indefinitely. Canada and British Columbia have indicated a strong preference for development of Arrow Lake or Mica Creek, both in Canadian territory. Earlier this month, the U. S. submitted its views in writing to the International Joint Commission, which plans to hold hearings in British Columbia area early next year. In view of such long-range proceedings, chances are the Army Corps of Engineers will not ask for fiscal 1956 construction funds. The Corps may ask for planning money, but even this is doubtful.

AEC has authorized $1,250,000 to finance two large projects for development of nuclear propulsion for large naval vessels. Westinghouse will conduct research and development work on the projects, for which a pressurized water reactor has been selected. Westinghouse work will be done at AEC's Bettis Plant, Pittsburgh.

Nine companies have joined in a group, known as the Rocky Mountain Nuclear Power Study Group, to explore feasibility of atomic power plants in the West. Firms are: Ebasco Services, Inc, Arizona Public Service Co, Fluor Corp, Ltd, Idaho Power Co, Minnesota Mining & Manufacturing Co, Phillips Petroleum Co, Public Service Co of Colorado, Riley Stoker Co, Utah Power & Light Co.

AEC Chariman Lewis L. Strauss told New York Herald Tribune Forum last week that he never expects atomic power to be able to compete with the cheapness of hydroelectric power. Strauss also said in a speech before New England Council meeting in Boston that AEC has drafted a design, construction, and operating code for research reactors.

Commonwealth Edison roughly estimates that flood damage to facilities will result in revenue-expense losses of $1 to $1.5 million, which will mean a net income drop of $500-750,000.

FPC has issued a sixth annual supplement, covering 1953, to its publication "Steam-Electric Plant Construction Cost and Annual Production Expenses." Copies are available at Publications Division, FPC, Washington 25, D. C. at $1.50 each.

Executive Changes . . . Walter A. Forbush, executive vice president and general manager of Brockton (Mass.) Edison Co, was elected president . . . Power Corp of Canada, Montreal, named Vice Pres P. A. Thomson president to succeed A. J. Nesbit, newly appointed board chairman.

Regular News Services

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Federal Agencies Express Approval

FPC, Comptroller General, Attorney General, and TVA are satisfied with the document as now drawn. SEC will rule on stock issuance by Mississippi Valley Generating Co after the formal signing

Decisions of all government agencies concerned with the Dixon-Yates contract, except the Securities and Exchange Commission, are in. None disapproves. SEC's ruling as to whether Mississippi Valley Generating Co is permitted to issue its stock to Middle South Utilities and the Southern Co. both holding companies, awaits formal signing of the contract and a request for issuance of stock.

The Federal Power Commission, which reviewed rate provisions of the contract, feels it is fair and reasonable to the government.

The Comptroller General, ruling on reimbursement of income taxes to the company, feels provision for "adjustment" to permit inclusion of tax amounts in fees paid by Atomic Energy Commission does not constitute direct reimbursement for income taxes, and therefore does not violate clause in the new atomic act designed to prevent direct repayment.

The Attorney General finds no fault with the document as a legal instrument.

TVA is satisfied with the contract as now drawn.

The Contract's Terms

Some of the pertinent provisions of the 56-page contract provide:

- That the government pay Mississippi Valley Generating Co $20,746,800 a year for 25 years, subject to certain adjustments. There is no guaranteed rate of return on the Dixon-Yates equity, but, in the absence of any adjustments, the $20,746,800 would include a 9% annual return on the equity investment of $5.5 million. This 9% could be increased or decreased depending upon whether the actual cost of the plant is below or above the initial estimated cost and upon certain other contingencies. The government would share in the cost of additional capital required up to about $10 million and thereafter the company bears the entire risk. If the plant costs less than present estimates, the government and the company would share equally in the savings. The remainder of the $106,115,000 of estimated plant cost would be represented by debt securities.
- That any "windfall" under the contract will be shared by the government and the company. The provision is that income above the target represented by present estimates of income for the company will be put in a special fund. Whenever that fund reaches $500,000 it will be divided equally between the government and the company. Since the company will pay a federal income tax on the amounts received by it, in effect, under present tax rates, the government would receive about 75% of any amounts that go into this fund.
- That the contract will be subject to termination by the government at any time after completion of the plant by giving the company three years' notice. The company is accorded a further period of five years in which to absorb the 600,000 kw of capacity at a rate of not less than 100,000 kw per year.
- That the Mid-South and Southern systems be entitled and obligated to take power produced by the plant not taken by AEC.
- That they be obligated to supply back-up power in certain circumstances.
- That Mississippi Valley Generating be permitted to compute or adjust the base rate or cost structure of the contract to include estimated federal income taxes. The new law prohibits direct reimbursement of income taxes, but the Comptroller General ruled it does not prohibit this indirect method of repayment. Mississippi Valley Generating will be able to revise its rates every calendar quarter to include estimated tax changes in costs. Income taxes are estimated at $536,250 annually, but any new taxes on earnings up to 9% on equity capital, after payment of bond interest and other costs, will be added to the basic capacity charge paid by AEC. The government is protected from reduced taxation by a clause providing that AEC's charges be lowered accordingly.

In a group of documents readied by AEC for submission to the Joint Congressional Atomic Energy Committee when it meets Nov. 4 to consider a waiver of a required 30-day waiting period to permit signing of the contract, comments of some of the agencies concerned with the document are revealed, and an explanation of how the Dixon-Yates group expects to finance its new plant is presented.

Financing New Plant

The new firm realizes it will have to pay a rate higher than 3½% on borrowed funds. Although it cannot firmly arrange its financing until after signing, officials feel that 77.4% of its debt capital would come from mortgage bonds issued for 30 years at 3⅝%, and 22.6% would be in the form of 10-year bank loans paying 3¼%. This financing would raise money costs to about 3⅜%.

AEC estimates 75% of the cost of the plant will be amortized during the life of the contract through annual capacity charges of $9 million it will pay.

FPC found plant construction and operating costs on which rates are based to be in line with current costs for large coal-burning steam-electric generating stations in the region. Although it also found that the terms and conditions of the contract are "somewhat different from the normal utility contracts we are called upon to review," FPC said the proposal is "fair and reasonable to the government." It pointed out that the "specialized nature" of the contract involves construction of a very large power facility to serve a single large customer, so that it would not be expected that the contract "would be strictly comparable to the usual utility wholesale contract for sale of power where the size and load conditions are substantially different."

# of Dixon-Yates-AEC Power Contract

In his comment approving the tax arrangement, Acting Comptroller General Frank H. Weitzel emphasized his decision was limited to the legal question involved, "and has no bearing on the necessity or desirability of the contract, which is for administrative determination."

TVA Chairman Herbert Vogel told AEC Chairman Strauss he believed the contract to be in a form satisfactory to his agency. He said this was based on "our understanding that TVA will be kept whole, sharing costs only to the extent of benefits received." He added: "If the arrangements between our agencies are completed on that basis, the greater part of our contract with Mississippi Valley will not be of direct concern to TVA."

The documents prepared for submission to the Joint Committee showed the annual cost to the government to be $20,746,000 including federal income taxes, but only $18,465,000 excluding taxes. These figures are based on an assumed fuel cost of 19¢ per milion Btu.

These documents also estimated cost of power to the government at 3.99 mills per kwhr when taxes are included in the computation. Without taxes, however, Dixon-Yates rates would be the lowest paid by AEC.

In another development last week, the Council of State Chambers of Commerce released an analysis of the growth of federal power agencies from 1940 to 1953, including a summary of its findings on Dixon-Yates plan.

The Council reported that estimated annual cost of the revised Dixon-Yates proposal is $20,569,000, as compared with $16,884,000 if TVA built a steam plant near Memphis. However, it explained that this difference is due to $1,499,000 in state and local taxes TVA would not pay, $1,059,000 in greater interest payments, and $1,127,000 in greater operating and transmission costs because of greater distance from the present TVA system and fuel supply. On the other hand, the Council said, the proposal would relieve the government of the need to expend more than $100 million in the next three years to build the steam facilities proposed by TVA.

Stietenroth Charges Have 'No Substance': MP&L

Mississippi Power & Light Co has amended its recent stock registration statement with the Securities and Exchange Commission to answer point by point charges leveled at its financing by its former secretary-treasurer, J. D. Stietenroth.

Stietenroth, fired the day after he loosed a blast at the firm for which he had worked for 20 years, has stated under oath before a Congressional subcommittee that MP&L's financial structure was "dominated" by the New York holding company which controls its stock, Middle South Utilities, Inc, and that MP&L kept two sets of books.

Middle South is a principal in the controversial Dixon-Yates proposal, to build a 650,000-kw steam plant near Memphis to sell electricity to Atomic Energy Commission as replacement for power Tennessee Valley Authority supplies AEC.

While Stietenroth was still employed by MP&L, the firm filed a refinancing proposal concerning 44,476 shares of preferred stock. Stietenroth's name, as principal financial officer, certified as to the correctness of the data contained in the prospectus. When he attacked MP&L however, Stietenroth wrote SEC asking withdrawal of his name from the document, stating he did not care to attest to the figures presented.

In its amendment to the prospectus last week, the Mississippi firm pointed out that the Federal Power Commission is looking into Stietenroth's charges, and that its books have already been examined by MP&L officers and the independent accounting firm of Haskins & Sells. Both MP&L's and Haskins & Sells' studies show "the charges which have been made are without substance or foundation," the amendment declares. This denial also pertains to another charge of Stietenroth—that an entry reversing overaccruals of income taxes was not proper.

MP&L made several other changes in its prospectus:

- One explained the role MP&L will play, as a Middle South subsidiary, in the proposed Dixon-Yates contract. This amendment says Middle South is responsible, under the contract to take approximately 80% of the new steam plant's power not taken by AEC, and to supply back-up power in certain circumstances. As part of the Middle South system, MP&L would share these responsibilities.
- Another stated that construction of the new Dixon-Yates plant is subject to obtaining regulatory approvals with reference to all the financing and working out the necessary debt financing arrangements.

This is an important point, not because of any questionability of Middle South's financing statements, but because the Dixon-Yates steam plant would be built by an operating company, Mississippi Valley Generating Co, owned 79% by Middle South and 21% by Southern Co, both of which are holding companies subject to the Utilities Holding Company Act of 1935.

Under that act, only twice has a combination of holding companies been permitted to set up and run an operating firm, and in both these cases, atomic energy installations were involved and the SEC ruled in favor of the enterprises because of an overriding national defense consideration. SEC still has to rule on the legality of issuance of Mississippi Valley Generating Co stock to the two holding companies.

- A third change explained MP&L's interest in buying out the North Central Mississippi Electric Power Association, a local cooperative which has had a difficult financial life since its formation.

Stietenroth's charges were presented largely several weeks ago before Sen William Langer's anti-monopoly subcommittee. The group was scheduled to meet again last Monday, but Langer postponed meeting for a few days. There was no indication at that time of whom Langer was prepared to call to the witness chair. Stietenroth's testimony was believed to have been completed.

N. Y. Daily News Photo

POWER LINE ripped down by Hurricane Hazel causes death of pedestrians in New York City

Hazel Strikes at Inland Utilities

Some companies report hurricane as worst they have experienced; many had outages affecting half their customers

Hurricane Hazel chose an inland route for her tour of devastation Oct. 15, adding a new list of utilities to this season's hurricane victims.

Swerving onto the Carolina mainland near Myrtle Beach, Hazel swept northward across Virginia, Maryland, and Washington, D. C. into Pennsylvania, New Jersey, mid-state New York, and on to Canada. Many utilities in her path reported more than half their customers without service at the storm's peak. Total dead was at least 250 persons. One company, Virginia Electric & Power Co, reported a lineman killed in the line of duty. Damage costs ran so high, estimates could not be ascertained.

Outside line crews from New England and Long Island, their own home grounds unaffected this time, moved in to reciprocate help they had received in earlier struggles with Carol and Edna (EW, Sept. 13, p 9; Sept. 20, p 106). Still other crews came from the Midwest, the South, and neighboring companies not hurt by the storm.

Damage in most areas was centered on distribution facilities. Trees and TV antennas falling onto lines were the biggest causes of outage. In one instance, an entire roof was blown onto a line. No generation troubles were reported. Heavy rains and flood conditions rather than winds also brought some damage to western Pennsylvania areas served by West Penn Power Co and Duquesne Light Co and in the Ohio River regions further west.

Hardest hit of the utilities were these:

• **Carolina Power & Light Co**—Worst catastrophe in history, say officials; service cut to one quarter-million homes with 95% restored by middle of following week; 700 men in field; martial law declared along beach areas.

• **Consolidated Gas, Electric Light & Power Co of Baltimore**—More than 150,000 outages reported; company's emergency storm trouble procedure made possible rapid restoration of service; 155 crews, 1,000 men in field.

• **Virginia Electric & Power Co**—More than half of its 620,000 customers out of service at storm's height; all restored by midweek.

• **Potomac Electric Power Co**—"Worst storm damage yet;" 80,000 customers out of service; back to normal by the end of last week.

• **Public Service Electric & Gas Co**—400,000 users out at peak; 90% restored in 48 hours.

• **New Jersey Power & Light Co**—70,000 of total 93,000 customers out at one time; all but 4,000 restored in 48 hours.

• **Philadelphia Electric Co**—300,- out at storm's peak; all restored by midweek.

• **Pennsylvania Power & Light Co**—Over half of 565,000 customers out at one time; 175,000 restored by following noon.

• **Metropolitan Edison Co**—Outages hit 50% of 226,000 total with 70% out in Pocono region at peak.

• **New York State Electric & Gas Corp**—"Most severe and widespread storm yet;" outages affected 180,000 customers.

• **Niagara-Mohawk Power Corp**—50,000 out in Central Division; figures not available on other divisions.

• **The Hydro-Electric Commission of Ontario**—Heavy interruptions in eastern section.

Other companies affected to lesser degrees include South Carolina Electric & Gas Co, Duke Power Co. Potomac Edison Co, Pennsylvania Water & Power Co, Pennsylvania Electric Co, and Rochester Gas & Electric Corp.

Hartford Mercury Unit Shut Down by Boiler Leak

A mercury leak in boiler tubes of Hartford Electric Light Co's 15-Mw mercury unit took the turbine out of service on Sept. 29. Repairs were delayed by need to recover a considerable quantity of liquid mercury from the fire box. The leak developed lower in the boiler than any previously encountered and company officials have not determined when repairs can be completed.

One of the operators on duty at the time of the leak reported off sick two days later and died suddenly Oct. 3. Complete investigation and autopsy indicated death from natural causes, not from the mercury leak four days earlier.

The boiler was installed at South Meadow Station in 1949. Mercury vapor at 130 psi drives the turbine re-rated to 15 Mw. Heat transferred in the mercury condenser supplies about 15 Mw in steam at 250 to 400 psi to conventional steam turbines in the plant.

Plans Made for Columbia Body

Northwest Public Power Association revises proposed bill for establishment of river development corporation

Principal public power organization in the Pacific Northwest has laid out another draft of a bill it plans to submit to Congress in January to create a Columbia River Development Corporation. The legislation would establish a successor agency to Bonneville Power Administration which would plan, build, and manage new generating plant and acquire existing and future federal plant under broad authority of the federal corporation.

Northwest Public Power Association insists its document is only for discussion purposes and is "tentative, preliminary, unsponsored and unendorsed." But there is little doubt its basic principles embrace an ambitious formula NPPA expects to approve at its December meeting.

Operating Organization . . . The bill would provide an operating organization while the principal organizational proposal now under serious consideration in the region, the Columbia Basin Interstate Compact Commission, intends to limit itself to an advisory role. The Columbia Basin Interagency Committee also has advisory power only.

Basically, the Columbia River Development Corporation bill is modeled after the St. Lawrence Seaway Act. But it modifies the financing. The bill calls for 50-year electric revenue bonds. For the first five years these would be purchased by the U. S. Treasury until the bonds are "seasoned." Subsequent issues would be marketed commercially but if unsold would be purchased by the U. S. Treasury. The principal and interest, in all issues, would be guaranteed by the federal government.

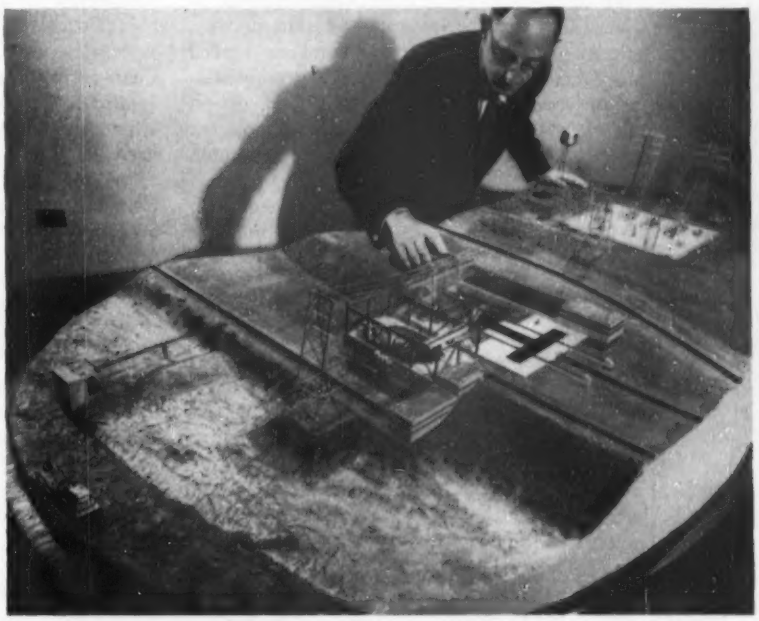
Five-Man Board . . . Management of the corporation would be vested in full-time, five-man board of directors appointed by the President with Senate consent.

The corporation would absorb Bonneville's transmission facilities within six months of the board's organization. It would be empowered immediately to plan, construct, acquire, operate and manage generating plant and transmission systems. Existing portions of the federal Columbia River power system, which includes such properties as Bonneville Dam built and operated by Army Corps of Engineers, and Grand Coulee built and operated by the Bureau of Reclamation, could be conveyed to the corporation upon direction of the President. The corporation would have power to condemn property for use within the authorized functions, but could not do so against private power generating, transmission or distribution facilities unless the legislatures of the states in which these properties were located had authorized such condemnation proceedings.

Area of Activity . . . Functions of the corporation are described as authority to "acquire, construct, operate, maintain and improve" hydroelectric or other power producing facilities within the U. S. Columbia basin and areas of Washington, Oregon and Idaho not within that watershed. The exemption would be the Klamath River and Goose Lake basins of southern Oregon.

Preference and priority in sale of power would be granted rural co-ops and municipal or other public systems when demand exceeded supply.

Rate schedules would provide sufficient revenue to cover all operations, maintenance and purchase costs, the principal and interest on all outstanding revenue bonds and monies due the U. S. for other agencies' properties.



Model of Nation's First A-Power Plant

John W. Simpson, Westinghouse Electric Corp's project manager, is looking over the 7 ft wide scale model, showing how the nation's first atomic-powered electric generating station may look when completed in 1957. The plant is being built under Atomic Energy Commission sponsorship by Westinghouse and Duquesne Light Co at Shippingport, Pa.

The core of the underground reactor where the heat and steam is produced consists of uranium fuel elements fitted into a cylinder about 6 ft in diam and contained in a steel vessel not more than 25 ft high. High pressure water flowing through the core is piped to the four boiler-like heat exchangers located in each corner of the underground reactor building. Each of these "boilers" also is encased in a steel container. Steam generated in the heat exchangers is piped into the adjoining building where it spins the steam turbine which turns the electric generator.

IN THE INDUSTRY

The attitude of regulatory commissions will determine whether utilities are to receive equal treatment with other industries under the liberalized depreciation provisions of the new federal tax law.

Purpose of these provisions is to promote the expansion of all industries as a boost to the national economy. They appear in line with national policies which have been endorsed by lawmakers of both political parties.

Utilities Scan Depreciation in New Tax Law

Yet regulatory bodies, federal, state, and local, have it within their power to say whether the national policy incorporated in the depreciation provisions shall apply to the very keystone of industrial expansion—the electric utility industry. Through their rate making authority the commissions may block utility use of the provisions by requiring that the credits be dissipated in lower rates.

Used Before . . . Theory behind the tax deferral provisions in the new tax law received a tryout during the Korean emergency. Then tagged "accelerated amortization," this tax device became a controversial subject as applied to electric utility accounting and rate making.

In the majority of cases, regulatory commissions decided that temporary tax benefits accruing to electric utilities through use of accelerated amortization should be set aside in a restricted surplus account for use later as tax expenses increased. This was obviously a fair solution to the problem.

If the utility industry is to gain equal treatment with other industries under the 1954 revenue law, it must be prepared to present again its case as it did in the accelerated amortization controversy.

Three main arguments are being leveled against the rate making and accounting procedure which commissions could prescribe in connection with the treatment of liberalized depreciation by utilities:

- The rate making process requires that only current costs are valid and that anything that partakes of normalization is merely an accounting device for underestimating income of a utility.
- Tax deferrals, resulting from liberalized depreciation, are an indeterminate liability and therefore cannot be properly handled under the strict accounting methods required by regulatory commissions.
- Rates cannot be set by the conventional rate making process because of the varying nature of the income tax liability resulting from liberalized depreciation.

On the other side of the coin, however, practical utility rate determinations currently permit normalizing expenses such as storm damage, rate case expenditures, and other supposedly non-recurring items of expense in order to restate the income of the utility. There is no reason why this normalization principle cannot be applied as well to the treatment of liberalized depreciation.

As for the argument that tax deferrals are an indeterminate liability, accounting experts point out that the liability incurred is not only determinate but the exact year when it becomes due can also be established.

Accounting Methods Required . . . With regard to the rate-making process as far as the annual income tax liability is concerned, only one step is needed. That is a calculation showing the liability which would have occurred had the straight line or some other method of computing income tax liability been used. This is the tax liability which would be used for setting rates and not the one resulting from the use of the liberalized methods.

It boils down to this: To reflect the temporary benefits resulting from the new tax provisions immediately into a utility rate structure would saddle the utility with rates inconsistent with sound economics. It would give present customers the full benefit of the fast tax write-off at the expense of future customers. It would therefore deprive utilities of the use of the liberalized depreciation provisions of the new tax law.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Chemical pace in combining elements to form new materials has outstripped the progress in evaluating the resulting suitabilities for application in design. Aging must largely be evaluated by experimentation.

Cable corrosion may be caused by cement and sand mortar applied for arc-proofing purposes. Better wrap first with impregnated and reinforced cellulose acetate tape according to a utility with plenty of underground experience.

Rain has little effect upon either the attenuation or the distortion of traveling waves.

Load division control between plants is reported to have saved fuel in one year to a value several times the control installation fixed charges.

Double transformation (step-up and step-down) may readily introduce reactance equal to 75 or even 100 miles of additional intervening line.

Troubles will be analyzable in better detail if recorder charts are automatically speeded up when a sizeable disturbance occurs.

Fatigue failures of conductors and ground wires caused by aeolian vibration have been practically eliminated on one system by application of torsional dampers.

Corona effects slow down the wave fronts and attenuate the crests of incoming surges; therefore, one bank of lightning arresters may suffice to protect an entire substation fed by several lines.

Systems operated without voltage regulators are particularly vulnerable to instability due to loss of generator excitation. Loss-of-field protection is desirable particularly if system power factor is high.

Flyash-concrete blocks show 1,285 psi crushing resistance, a third more than the 900 psi prescribed for standard blocks. Also absorbs ¼ less moisture. Ash replaced 20% of the portland cement.

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INTERRUPTING DEVICE FOR ALL AIR SWITCHES

VERTICAL, HORIZONTAL, HOOK STICK

for opening line charging currents, transformer magnetizing currents and small load currents at voltages from 15 KV to 161 KV.

Easily Installed on Switches Now in Service

Necessary phase spacings and clearances are not increased by the addition of the "QB" Device. The current path through a closed switch is through its main blade and contacts. The quick break blade is not in the current path until the switch starts to open; then the current is transferred from the main switch contact to the quick break blade.

Simple, Positive—No Additional Effort Required in Opening Switches When Frozen

The quick break blade is carried without extra effort. Ice on the main switch blade and contact is broken before effort is expended in breaking the ice on the "QB" attachment.

Spring and Current Carrying Members are Independent

Spring actuated quick break blade is mounted on the switch contact stack. This design permits the use of a more substantial construction, a heavy independent spring driving mechanism and much greater opening speeds.

"QB" Quick Break Device applied to a MK-40 Vertical Break Switch.

Fig. 1—Vertical Switch blade (A) is closed into the main contact (B) and the quick break blade (C) is in neutral position.

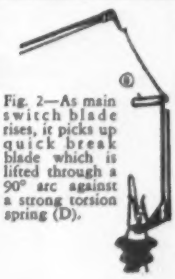

Fig. 2—As main switch blade rises, it picks up quick break blade which is lifted through a 90° arc against a strong torsion spring (D).

Fig. 3—Quick break blade released when main switch opened to about 50° returns to neutral position at a very high speed.

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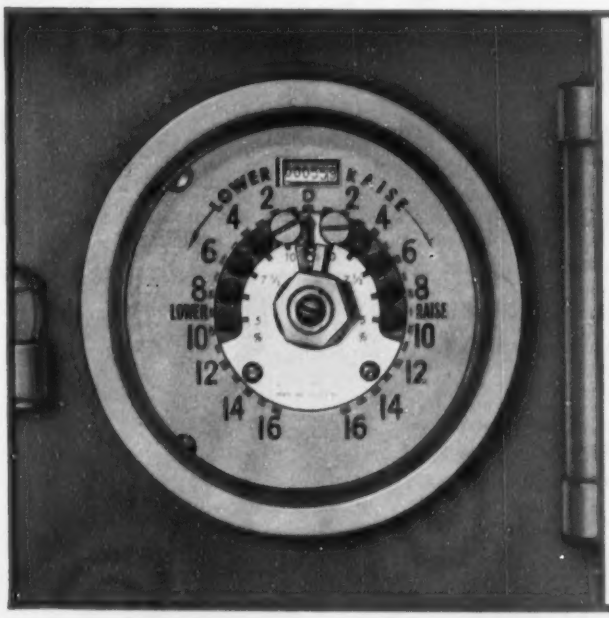
200 amps—20% range **267 amps—15% range**
229 amps—17½% range **320 amps—12½% range**
400 amps—10% range

This means initial cost can be reduced in most cases. And, when loads increase, you can decrease range of regulation in proportion — instead of slicing ranges in half, as with all other regulators. Extra short-circuit capacity is available, too.

The *Vari-Amp* feature also permits unequal range of operation. Under certain conditions you can get full 10% buck even at the higher ratings. It will pay you to get all the facts. Consult your nearby Allis-Chalmers office or write Allis-Chalmers, Milwaukee 1, Wis., for Bulletin 01B6065C.

A-4459



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2 **PLACE LIMIT SWITCH PINS IN DESIRED POSITIONS**

3 **CLOSE INDICATOR WINDOW**

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Corrosion-resistant materials and finishes, an oilless, maintenance-free bearing system and low disk speed all add up to extra long life.

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A METER WITH STRAIGHT LINE ACCURACY

UP TO 100 AMPERES

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JM54-9

Columbia Policy . . .

. . . explained at Wenatchee by Sherman Adams, who cites need for local help on dams

A principal reason behind the Administration's partnership policy in the construction of new generating facilities is the belief that hydroelectric development of the Columbia River is too big a program to be carried out by the federal government alone, the Pacific Northwest Trade Association was told at Wenatchee, Wash., by Sherman Adams, assistant to President Eisenhower.

"If you here in the Northwest wait for tax dollars to be collected from citizens all over the United States and to be appropriated by Congress, much of the work you want done will not get done, either on the scale you want or in the way you want," Adams said.

14 Applications on File . . . Adams continued: "There are now on file with the Federal Power Commission 14 applications from local groups which propose water power development on the Columbia and its tributaries. These proposals together with the John Day project—half of which private interests have offered to pay—represent almost 4 million kw.

"Conservation, development, diversification—these are the three key words with which you can mold the future to your will. The only way you can achieve all three is through cooperation every step of the way between public agencies and private initiative.

"The preachers of federal monopoly tell us that private participation means exploitation. We reject this theory. Your efficient management of your timber and fishing industries shows us that private enterprise and local government in cooperation with each other can themselves provide for the preservation of our natural resources."

Government Investment . . . Adams pointed out that the federal government intends to do its share in development of the Columbia, however.

"The federal government has invested about 1½ billion dollars in Pacific Northwest projects and is committed to investing another one billion dollars to complete projects now under construction," he pointed out.

SCE&G'S Biggest Station Dedicated

South Carolina's Electric & Gas Co officially dedicated its largest generating plant this month—Urquhart Station. The plant now has two 75,000-kw generating units in operation. Construction of a third unit (100,000 kw) is under way.

The new plant was named for Norman Dan Urquhart, the utility's chief construction engineer who supervised building of the station. A plaque honoring Urquhart was unveiled at the ceremonies and will rest in the cornerstone of the structure.

More than 300 business, civic, industrial, and financial leaders of the state and nation attended the dedication Oct. 7. The following week some 2,500 visitors from South Carolina and the nearby Augusta, Ga., area toured the plant during "open house."

Discussion on Equipment to Highlight Nema Parley

Discussions on switchgears, high voltage insulators, capacitors, and circuit breakers will highlight the annual meeting of the National Electrical Manufacturers Association. The parley, which features more than 50 technical sessions, is slated to be held Nov. 8-11 at Haddon Hall, Atlantic City, N. J.

In addition to the technical discussions, the Statistical and Market analysis Committee of Nema's Major Appliance Division will hold three sessions. Topping the division's talks will be Nema's annual association dinner featuring a major appliance presentation.

This includes a 60-minute program entitled "Joint Action Today — For More Business Tomorrow." With the use of cinemascope slides, the division covers the future of major appliances and what this means to the whole electrical industry. R. A. Rich, vice president of Philco Corp, will be master of ceremonies.

Scheduled to address the general luncheon on Tuesday, Nov. 9, is Major Gen William J. Donovan, who was recently ambassador to Thailand. Subject of his talk will be "The Struggle in Asia."

Nema's annual luncheon on Wednesday, Nov. 10, will feature the presentation of a 50-year certificate to R. S. Fleshiem, assistant to the vice president of the General Machinery Division of Allis-Chalmers Manufacturing Co.

Power Is Election Issue but the Theme Varies:

In seven or more states, power policy will be a major issue in the coming Congressional election in November. With Congress now so evenly divided, it is possible that the way the West votes on some half dozen Senate races and a dozen Congressional contests could decide which party will win control.

In the West such national issues as farm price supports, tax revision, foreign policy, and labor legislation will be overshadowed by power policy and the development of natural resources. It will be pretty much the old federal-vs-private power fight, with the target this time being President Eisenhower's "partnership" policy, which opens the way for private and local investment in large hydroelectric and water development projects.

In Oregon, Douglas McKay is helping GOP Sen Guy Cordon while . . .

OREGON

The power fight is the hottest in Oregon's senatorial race where Republican Guy Cordon is fighting for his political life against the challenge of State Sen Richard Neuberger, freelance writer and champion of all-out federal resource development.

Oregon's electorate has heard very little except power as Neuberger, joined by the state's independent Sen Wayne Morse and by Sen Estes Kefauver (D-Tenn.), has hammered away at the Administration's partnership policy and Cordon, aided by President Eisenhower himself and Interior Secretary Douglas McKay, has sought to defend the new policy.

In addition, former Interior Secretary Oscar Chapman has been touring the state on behalf of Neuberger. And Vice President Richard Nixon and Sen William Knowland (R.-Calif.) plan to get in some licks before Election Day for Cordon.

GOP strategy in Oregon since the President dedicated McNary Dam and defended his partnership program has laid great emphasis on Cordon's seniority in the Senate on the Appropriations and Interior Committees and his ability to wheedle federal funds for regional public works.

This approach, of course, is aimed directly at Neuberger who, as a freshman senator, would have no chance for a committee chairmanship. Neuberger, nevertheless, has implied his election would result in larger U. S. outlays for dams and mean a return to full federal development of power resources.

Cordon, admittedly a poor campaigner on the speaker's platform, has been hitting back hard at his critics. To charges that he is a "giveaway senator," Cordon cites praise he received during the last Administration from ex-Bonneville Power Administrator Paul Raver for his work in getting funds for hydro projects in Oregon. The 64-year-old Cordon also charges there has been broad misrepresentation of the President's partnership policy.

Neuberger, who led all candidates including Eisenhower in total votes while he was running for re-election for state senator in 1952, has built his campaign on the thesis that Oregon will suffer as a result of the partnership policy. He points to the fact that there have been no new starts on the Columbia or on major private projects since the Eisenhower Administration took office. He also has capitalized on declining employment and population in Oregon, claiming industry is being lured to other states where power is more plentiful.

Assertions that the partnership policy is a result of the need for economy in government are labeled "audacious" by the 41-year-old Democratic campaigner. Reason, says Neuberger, is that the partnership is one "in which Uncle Sam surrenders to a private power company the one feature of the dam which returns funds to the national treasury."

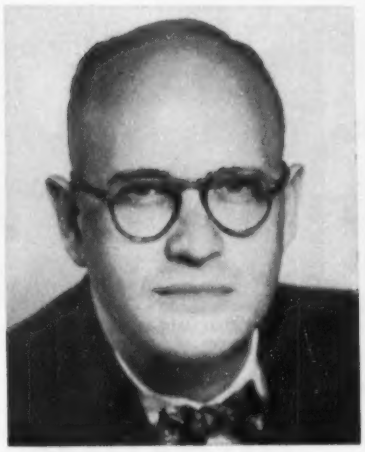
In plugging for the re-election of Cordon, Interior boss McKay has pointed to the need for 500,000 kw of new generation each year to keep pace with normal growth in the region and declared that the "federal government won't do it alone." Participation of local interests in development of regional power supply, he contends, is a necessity.

Morse, whose political future may be affected by the outcome of the race, has been stumping the state for Neuberger and vigorously attacking Administration power policy. His blasts at Cordon have been broader than those of Neuberger. The Oregon independent has attempted to show that Cordon has opposed the Administration in Senate votes.

The Dixon-Yates controversy has been injected into the Oregon campaign by Senator Kefauver, but this issue is greatly overshadowed by the local power issue.

Still another campaigner for Neuberger, Oscar Chapman, has referred to the partnership policy as a "deal"

Partnership, Hells Canyon, Dixon-Yates, Niagara



challenger Richard Neuberger is being aided by Sen Wayne Morse

reflecting the fact that the "administration has turned its face toward Wall Street and its back on the West." He like his Democratic colleagues has scored the Administration for its Hells Canyon stand.

While power has been the overriding issue in the Oregon senatorial race, a victory for one side cannot be interpreted as clearcut approval or rejection of public or private power. These factors must be taken into consideration in judging the Oregon results: (1) Oregon is traditionally Republican, (2) major Republican candidates are not for private power exclusively and are not against public power, (3) a feeling Oregon will not stand for two "talking senators"—Morse and Neuberger, and (4) economic conditions. All but the last of these factors would seem to be favorable to Cordon.

The Administration's partnership policy is an issue, but not a major one, in several House contests in Washington. One of the reasons for the minor role power is playing in the elections here is that there is no power shortage in the state at this time.

All the Republican candidates are standing on the partnership policy, but in four of the seven Congressional districts the GOP incumbents are regarded as generally favorable to public power.

In the other three it is felt the Republican candidates lean toward the type of partnership that would favor private power. In the first district Rep Thomas Pelly, Republican incumbent, is given no better than an even chance to defeat Hugh Mitchell, Democrat. In the second Rep Jack Westland, Republican, is favored over Democrat Harry Hensen. Representative-at-Large, Don Magnuson, Democratic is expected to hold his seat against Republican Al Canwell. Democratic candidates are all strongly for public power and they are talking about power a lot more than the Republicans.

IDAHO

In Idaho a big issue in Senatorial and House races is Hells Canyon. The issue is whether the federal government should build a high, multiple purpose dam at the Hells Canyon site of the Snake River or whether Idaho Power Co should be permitted to build three low-head dams further down the river. Idaho Power's application to start the project now is before the Federal Power Commission.

This year Hells Canyon appears on the platforms of both parties, committing Democrats and Republicans as a whole to opposing views.

The Democratic platform demands federal development of a high multipurpose dam at Hells Canyon. The Republicans, while not stating opposition to a federal dam at Hells Canyon, in so many words, used this language in their platform:

"We oppose any and all proposals for valley authorities. We oppose any and all federal legislation which would create a project or means for exercising the so-called 'paramount rights' of the federal government over the water resources of the state."

State Sen Thomas Heath, who drew the Republican reclamation plank, said that Hells Canyon is just a "term" which spells out the argument as to whether the federal government shall dominate a state's rights in its agricultural and industrial water, or whether private enterprise shall be permitted to use some of the water for beneficial industry.

But the Republicans themselves are not of a single mind on water development, despite their platform. Sen Henry Dworshak, campaigning for reelection, has been criticized bitterly because he appears neither to favor nor oppose Hells Canyon. He says in answer to all questions that he opposes monopolies either government or private. He has yet to take a definite stand on the issue.

But his opponent, former Sen Glen Taylor who left the Democratic Party in 1948 to run for vice president with Henry Wallace on the Progressive ticket, is vigorously outspoken in favor of a government dam at Hells Canyon.

Hells Canyon will be the issue in the re-election fight of Rep Gracie Pfost in the first Idaho district as it was in 1952 when Mrs Pfost (nicknamed Hells Belle) staked her campaign on opposition to the Idaho Power, three-dam plan. Her opponent, Schwiebert of Caldwell, never has come out against Hells Canyon, leans toward partnership view.

The entire argument over Hells Canyon, although it began long before President Eisenhower's statement of a partnership policy in development of natural resources, now is a part of the dispute over that policy. Visiting Democratic speakers have plugged for Hells Canyon, condemned private monopolies, and denounced the Eisenhower partnership theory as turning control of water over to private

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BRANCHES IN 32 PRINCIPAL CITIES

TS4-17

In Idaho elections Hells Canyon development is at issue: Private 3-dam plan vs high federal dam

(Continued from page 17)

monopolies. The Republicans in Idaho—with the exception of Senator Dworshak—say that the time has come when the nation no longer can afford huge power developments unless no one else can do it where necessary. The Republicans say private capital must take on the job of feeding electric current to industry, and they say that is exactly what Idaho Power is trying to do. But the Republicans, at the same time, hold steadfast to the point that the partnership theory could work at Hells Canyon, and they did it in this platform language:

"We endorse the President's partnership program for development of genuine, bona fide multipurpose river projects, with ironclad protection for agricultural use of our water resources."

Such protection, say the Republicans, is lacking in proposals for a federally-only built high dam at Hells Canyon. The Democrats say that protection either for water or for the possibility of lower cost electric power is lacking in the Idaho Power case.

An issue whose impact will be felt in at least three states is the $1-billion Upper Colorado River water storage project. Power, water diversion, irrigation, and conservation are all involved.

NON-COMMITTAL: Sen Henry Dworshak

FOR FEDERAL DAM: Glen Taylor

WYOMING

In Wyoming, former Sen Joseph O'Mahoney, Democrat, who is trying to regain a seat in the Senate, went up and down the state during the summer predicting that the Senate would not approve the Upper Colorado measure so long as two California Republicans, Sen William Knowland and Vice President Nixon, had a hand in Senate affairs. Now he is reminding the voters that he told them so. He has also charged the bill was halted when Sen George Malone of Nevada, a Republican, threatened to filibuster if the advocates of the bill insisted on proceeding with it. And, he declared, the Republican-controlled rules committee had pigeon-holed the bill in the House after it had been approved by the House Interior Committee.

O'Mahoney made his assertions after his Republican opponent, Rep W. H. Harrison blamed "Democratic opposition" for failure of the measure.

When the campaign got underway in Wyoming, Interior Secretary McKay made a speech expressing the President's regrets that the Upper Colorado project had not been approved by Congress. At the same time he pointed out that Congress had appropriated more than $13 million for Department of Interior use in Wyoming this fiscal year including funds to initial construction of the Glendo project.

The Republican Rural Electrification Administration policy is also under fire in Wyoming. O'Mahoney charges the policy "contemplates taking away from the local REA co-op the preferential right to purchase directly from the government the electricity produced by the big public power dams." He has declared the result of the policy will be to allow the private companies to step between the power plant and the consumer, to buy the government power and resell it to farmers and householders at increased rates.

Sam Tully, Democratic candidate for Wyoming's lone seat in the House, has joined O'Mahoney in criticizing the Administration's policy on REA.

In Utah, failure of the Upper Colorado bill to get passed caused bitter disappointment. There is no Senate race in Utah this year, but it will be an issue in both House races where the Democrats will charge that the Republican incumbents didn't try hard enough to get it through.

The story on Upper Colorado is quite different in California. In the Senate race between Sen Thomas Kuchel, Republican, and Rep Sam Yorty, Democrat, it is a question of who was against it the most. California instinctively lines up against the other basin states on anything involving disposition of Colorado River water. Yorty is charging that Kuchel didn't do enough to bottle up the authorization bill in committee and Kuchel says he did everything possible, including writing a one-man minority report against reporting the bill.

Upper Colorado also will be an issue in Colorado, but not as thorny a one as the Fryingpan-Arkansas power and water diversion project that would divert water from the western slope of the state to the eastern slope. In the third district, Rep Edgar Chenoweth, Republican, is in trouble because the House voted against consideration of the measure. The Democrats and the Denver Post have kept Chenoweth under heavy fire for failing to get the project through, despite the fact that he introduced the measure and worked for its passage.

DIXON-YATES

The Democrats have made the controversial Dixon-Yates contract their top power target nationally. The issue is being used on the state level, but its importance is varied. In the West it is outweighed by local power issues. South of the Mason-Dixon line (in

Contract figures in Kentucky race

(*Continued from page* 19)

some quarters now referred to as the Dixon-Yates line) the Democrats are making heavy use of the issue but it isn't likely to affect the outcome of any races since the area will go Democratic anyway.

KENTUCKY

The issue is the sharpest in the Kentucky senatorial race where former Vice President Alben Barkley is fighting to come back to the Senate. His opponent, incumbent John Sherman Cooper, Republican, opposed the Dixon-Yates contract, but he is expected to lose votes on the issue because of the Administration sponsorship of the contract.

Cooper has said the contract represents an invasion of public power rights by private industry. He has been arguing that "it is not enough to criticize loudly without offering some solution to the power needs of Tennessee Valley Authority." His solution is that TVA be allowed to issue bonds to obtain funds for steam plants needed for its expansion. Cooper also insists that TVA should not invade private power territory beyond the limits of the area fixed by the TVA act.

Barkley, of course, is making the most of opposition to the contract in Kentucky and particularly the Paducah area where the ex-Veep hails from. He is also capitalizing on unemployment in the coal regions.

Another issue in the campaign is Barkley's age—he's 76. To counteract this the Democrats have started a whisper campaign about Cooper's bad heart, but the GOP senator is giving lie to that with vigorous campaigning.

Most important of all, however, is the general feeling that since there are simply more Democrats in Kentucky than there are Republicans, Barkley will win.

NEW YORK

Power is not a strong issue in the East except in New York State where the two parties are divided on Niagara hydro development. Both parties favor state development of Niagara but they are miles apart on how it should be distributed.

The two parties discuss development of water resources in their platforms. The Republicans take credit for issuance of a license to the State Power Authority for the St. Lawrence project and charge Democrats with "outright obstruction" on water resource development. In stating the difference between the parties' stands on power the GOP platform says this:

"The Democrats insist that preference should be given to publicly and cooperatively owned systems in the distribution of state-generated hydro power. Such preference would be an injustice to the vast majority of our state's consumers who are served by private companies. We pledge fullest equitable benefits from the power generated at St. Lawrence and Niagara to all rural and domestic consumers, including municipal and co-op customers. . . .

"We state again our Republican pledge of many years standing: we shall continue to oppose the sale, lease, or licensing to private ownership of the people's interest in the state's undeveloped power resources. We also oppose federal development of these waters as proposed by the Democrats."

The Democrats, for their part, claim they have saved for the people water resources of the St. Lawrence and Niagara Rivers against attempts by Republicans to hand them over to private interests. The Democratic platform contends the Ives-Becker bill, sponsored by the Dewey Administration, would turn Niagara power over to the private utilities at the busbar.

"The St. Lawrence-Niagara projects will annually produce over 15 billion kwhr of electric energy. Under a Democratic Administration this low cost energy will be made available to the people at yardstick rates to reduce the excessive charges now borne by millions of domestic, rural and commercial customers for electric service throughout New York State."

In the gubernatorial campaign, Democratic nominee, Averell Harriman, has labeled his opponent, GOP Sen Irving M. Ives, a supporter of private power interests. In one speech he noted that Ives had voted for the Dixon-Yates contract and asked: "Can we trust the vast power resources of Niagara and the St. Lawrence to this champion of the big power interests?"

Ives has been less vocal on the power issue. Though he let it be known in Washington that his bill calling for state development of Niagara power was introduced at the request of Gov Thomas E. Dewey and failed to appear to testify in its behalf at the hearings, he now has proudly proclaimed his paternity of the bill.

POLITICS is discussed on TV show by Sen Sherman Cooper (left) and Alben Barkley (standing)

Stress Relief CONES

improve the electrical characteristics of high voltage cable terminations

Stress relief cones reduce the unit electrical stress in the cable insulation at the end of the grounded sheath. They increase the overall internal dielectric strength and reliability of the cable termination.

Stress relief cones are recommended for all shielded cables and particularly for single conductor lead-covered and three-conductor shielded cables operating at 12Kv. and higher voltages.

For compound-filled potheads on paper or varnished cambric insulated cables, a double cone is built up of half-lapped varnished cambric tape. The lower slope is wrapped with copper tinsel braid, tucked under the bell at the end of lead sheath and soldered to the lead sheath and/or to the cable shielding tape. *On rubber insulated cables use Nozone rubber tape and TINNED copper tinsel braid.*

For gas and oil filled potheads, insulating tape is applied OVER the ordinary stress cone to compensate for the absence of solid compound and provide the necessary electrical strength.

Specify and order G&W POTHEADS with stress relief cone material in unit package kits. The correct amount of proper tape and shielding braid is supplied in convenient form—clean, dry and ready for use. Varnished cambric tape and copper tinsel braid is oil packed in sealed cans.

G&W furnishes dimensions and instructions for stress relief cone installations, when requested on orders for potheads.

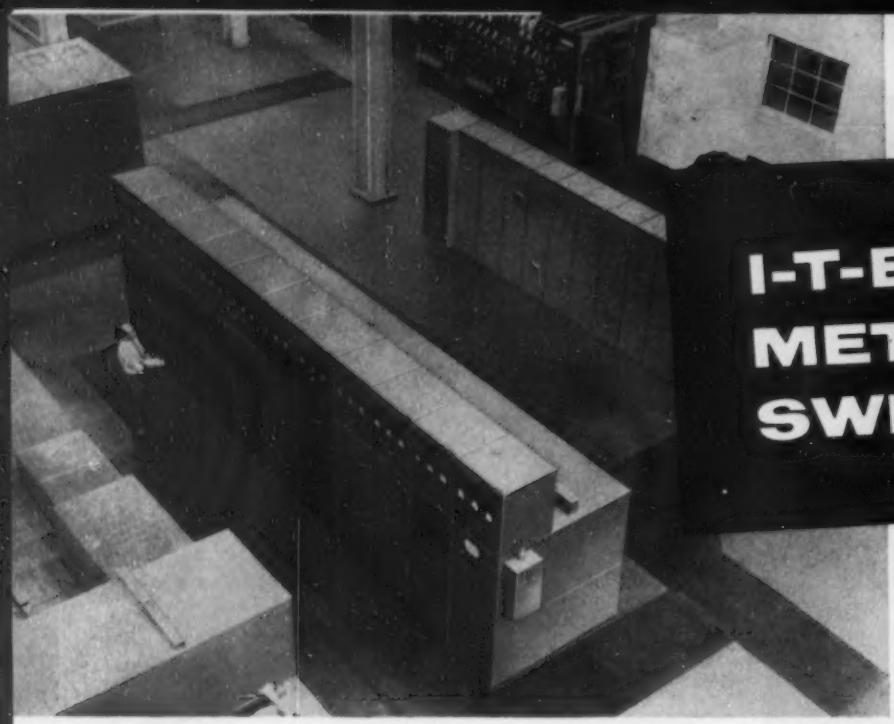
Send for Bulletin No. A52 which explains the theory of stress relief cones in potheads, and lists prices of unit kits for cables of various kinds and sizes.

G&W ELECTRIC SPECIALTY CO.
7780 Dante Avenue, Chicago 19, Illinois

Representatives in principal cities of U.S.A.
In Canada—Powerlite Devices Ltd., Toronto, Montreal & Vancouver

A525

G&W



I-T-E METAL-CLAD SWITCHGEAR

Your metal-clad switchgear is a *vital* purchase. That's why you should take advantage of the many advanced engineering features of I-T-E quality equipment. They add up to a sound investment which pays *extra* dividends for years and *years* in maximum electrical protection, control, and service continuity.

I-T-E air circuit breakers are the heart of your switchgear. With an I-T-E HV breaker you get *positive arc interruption* —the ultimate in air breaker performance. In just one instant of its lifetime, this rugged device can repay its cost many times over. In addition to superior breakers, the modern I-T-E switchboard incorporates the highest quality components and accessories.

I-T-E metal-clad switchgear is completely factory-assembled and -tested *before* it arrives at the installation site. Tight construction schedules are met by dimensionally accurate assemblies which need only be brought to their location and connected according to plan.

I-T-E extra-service benefits include application engineering aid in (1) selection and application of equipment, (2) preparation of specifications, and (3) coordination of all job requirements.

RATINGS

2400, 4160, 7200, 13,800 volts a-c
50,000 through 500,000 KVA interrupting
600 through 2000 amperes continuous

For details, contact the I-T-E field office nearest you. Look in your classified directory under "Electric Equipment," or write for Bulletin 7004B.

THE SYMBOL OF QUALITY SWITCHGEAR

I-T-E CIRCUIT BREAKER COMPANY

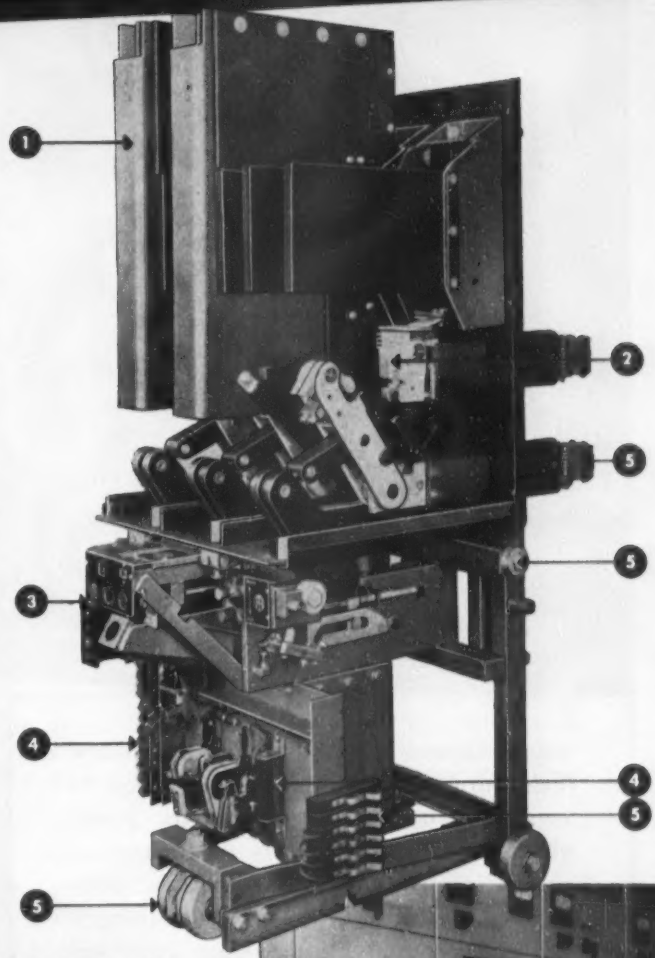
19th AND HAMILTON STS., PHILADELPHIA 30, PA.

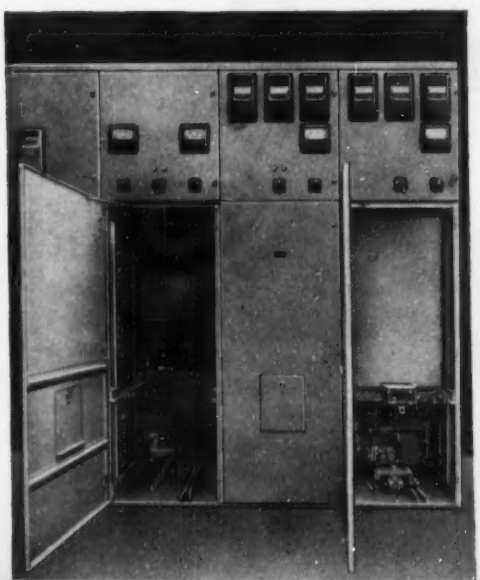
METAL-CLAD SWITCHGEAR

engineered for • Protection • Safety • Accessibility

CHECK THIS ADVANCED I-T-E ENGINEERING:

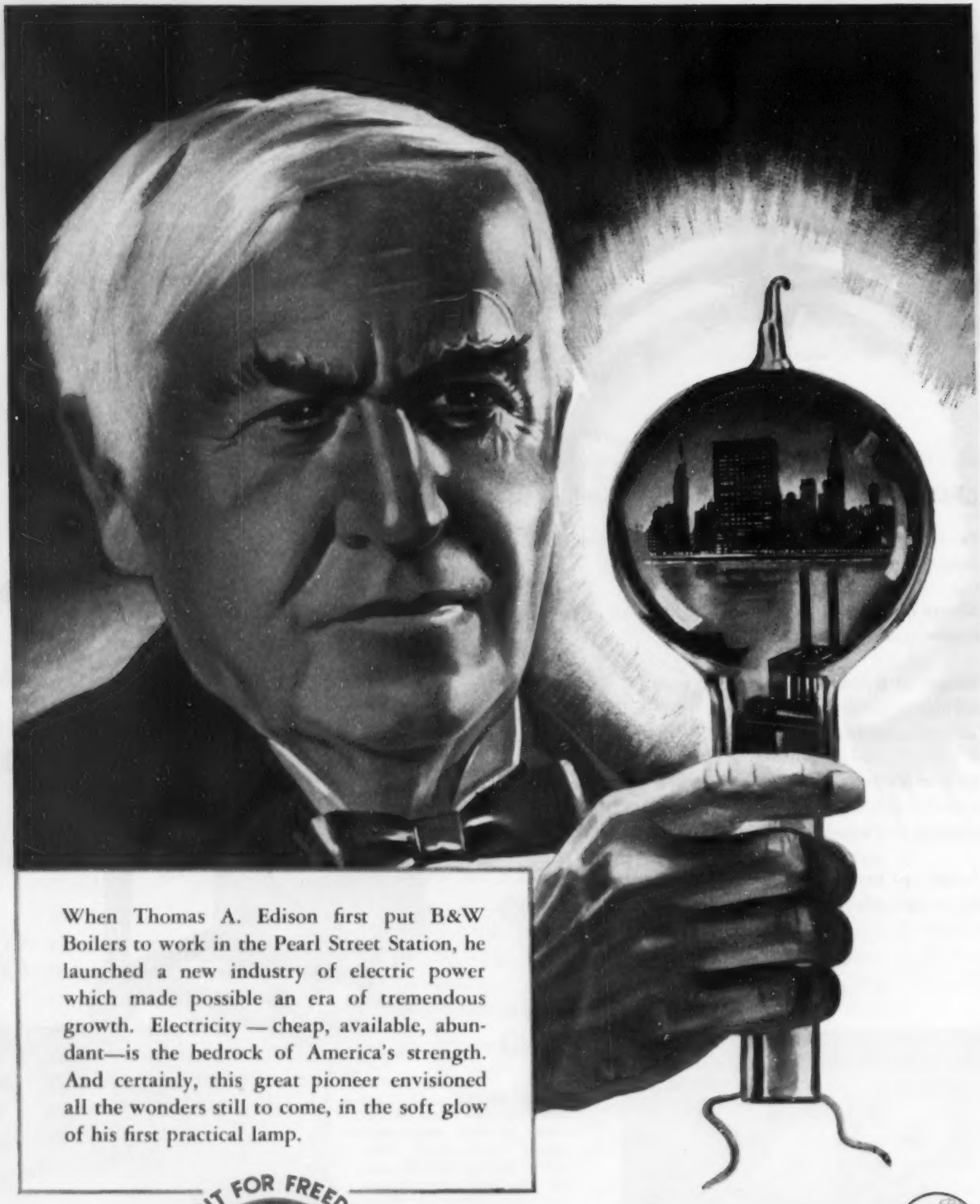
1. **Positive arc interruption** is provided by carefully designed arc chutes, contacts, and blowout irons.
2. **Sturdy main and arcing contacts** are designed to minimize wear and deterioration due to arcing.
3. **Simplified testing** is achieved by centralizing electrical test button, manual trip button, breaker positioning device, and emergency breaker closing handle.
4. **Easy inspection and maintenance** is afforded by readily accessible secondary control relays, rectifiers, auxiliary switches, and separable contacts.
5. **Truck-type horizontal drawout** is facilitated by precision-made guide wheels, bar, and self-aligning contacts.





ACCESSIBLE COMPARTMENT DESIGN features wide-opening doors. Withdrawal of breaker closes grounded, steel shutters to protect personnel. Metal partitions completely segregate compartments. Instruments and relays are fully isolated from breakers, safe from jar and vibration—protecting against damage and false operation.

TO TEST BREAKER quickly and safely operator works through small auxiliary door—from *outside* compartment. Other safety features include complete interlocking of breaker operation, segregation of circuit wiring, proper venting of arc gases, and utilization of correct insulation materials.



When Thomas A. Edison first put B&W Boilers to work in the Pearl Street Station, he launched a new industry of electric power which made possible an era of tremendous growth. Electricity — cheap, available, abundant—is the bedrock of America's strength. And certainly, this great pioneer envisioned all the wonders still to come, in the soft glow of his first practical lamp.

LIGHT FOR FREEDOM
LIGHT'S DIAMOND JUBILEE 1879 1954
POWER FOR PROGRESS

BABCOCK & WILCOX
BOILER DIVISION

N-187

Senator Lauds Industry at Plant Dedication

Pennsylvania Power & Light Co's Martins Creek plant was officially dedicated on Columbus Day. Sen Edward Martin (R-Pa.) and Charles E. Oakes, PP&L president, addressed several hundred guests at the special ceremonies following a conducted tour of the new plant.

The station (pictured at the right) is located on the Delaware River about ten miles above Easton. Plant's first unit is rated at 132,500 kw. Work has started on a second unit of similar size which is expected to go on the line in 1956.

In his speech Senator Martin called the Martins Creek plant a symbol of enterprise, industry, ingenuity, invention and America's faith in the future. He said it depicted "the continuing growth and development of America."

The Pennsylvania lawmaker declared that foresight and planning have characterized the electric industry throughout its history. He pointed out that Martins Creek is evidence that these qualities "are still in full flower."

Martin vigorously defended the new atomic energy law which ends the government's monopoly in this field and opens the door to private development of atomic energy.

The Senator also cited President Eisenhower's remarks that it is not properly a responsibility of the federal government to supply all the power needs of our people, just as the government should no more attempt to assume responsibility for supplying drinking water, food, housing, or transportation.

Oakes paid tribute to Thomas A. Edison and his invention of the first successful incandescent lamp 75 years ago in his remarks. The historic invention he said "signalled the birth of the electric industry."

Electric companies, said Oakes, have a dual trusteeship —one to give customers the finest service at lowest possible rates and the other to investors who have provided funds for growth of the industry.

The utility president declared that his company is ever searching for new methods to lower production costs and cited the company's recent agreement with Atomic Energy Commission to study use of atomic power on PP&Ls system.

A-Power Package Plants, Diesel Costs Compared

Nuclear power package plants won't be competitive with diesel units anywhere in the Middle East nor in most parts of India and Pakistan within the foreseeable future, according to a confidential government study.

The study estimates that nuclear package plants would be able to compete with diesel only in places where diesel fuel exceeded 25¢ per gallon, and where power demand was sufficient to assure a high load factor. The capital cost of nuclear plants would have to be under $500 per kw even then.

This would rule out all of the oil rich Middle East and the coastal areas of India and Pakistan—where diesel fuel costs about 18¢ per gallon. High transportation costs in some interior parts of India and Pakistan theoretically would make nuclear power economic there. But in most places there still would be the problem of insufficient demand for power to permit efficient operation of nuclear units. They would be feasible only where they could be used to run local industries serving local demand—and hence where shipping products out would not be a problem.

Battelle Plans Expansion of Nuclear Research

Battelle Institute, Columbus, Ohio, has announced plans for a $1.5-million expansion of its nuclear energy research facilities.

New facilities will include a nuclear reactor, a reactor development laboratory, and a nuclear fuels laboratory. Plans also call for the installation of a large cobalt-60 source. Construction work is expected to begin about the first of next year. The laboratories will be constructed on a 397-acre tract of land near West Jefferson, Ohio, 15 miles west of downtown Columbus.

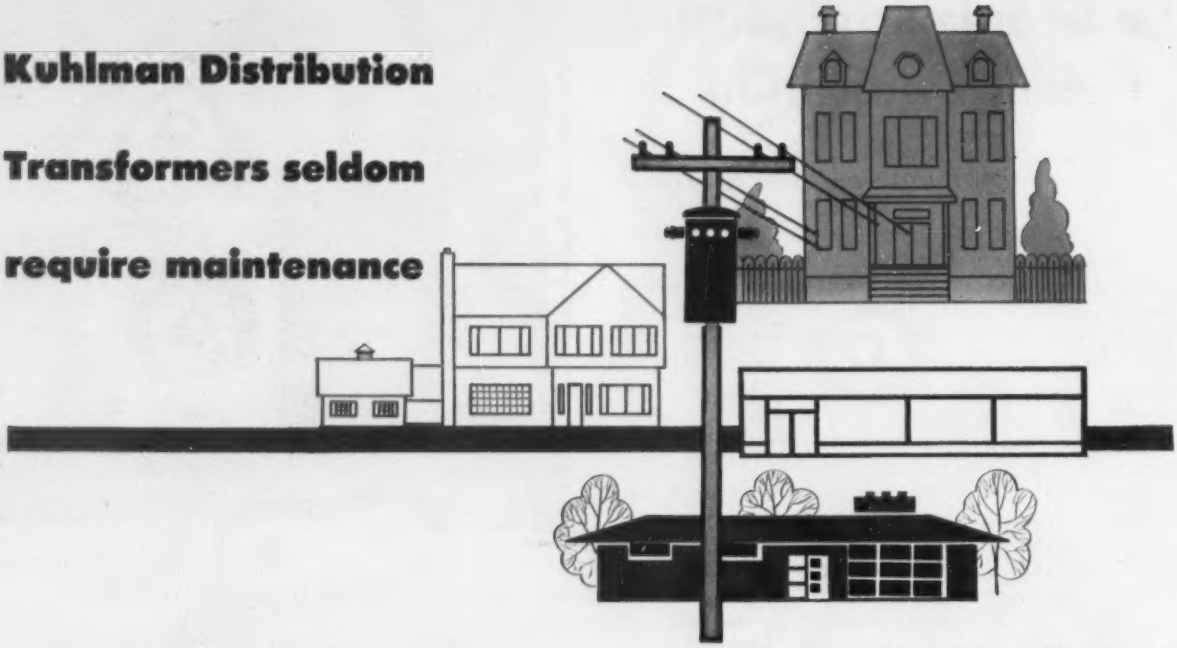
The nuclear reactor will be of the swimming pool type, capable of operating at 1,000 kw. One of the principal uses will be furnishing neutrons for conducting exponential experiments on power reactor cores. Such experiments are important in development of nuclear plants for generation of electricity.

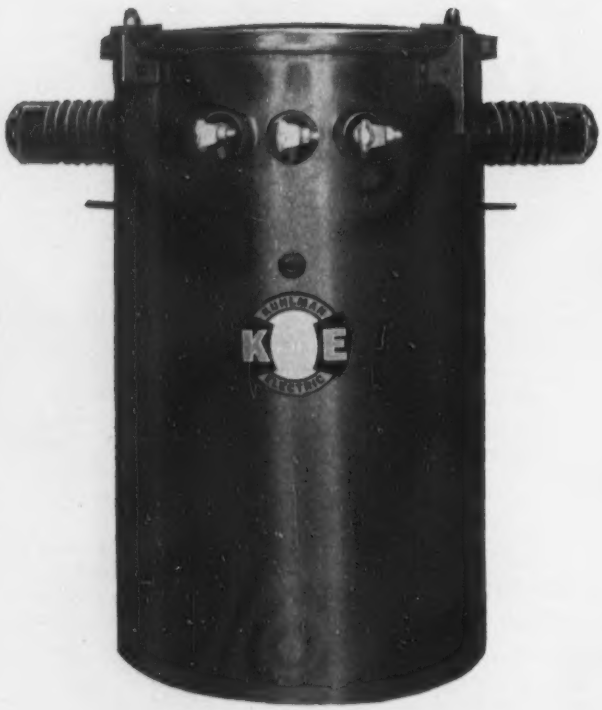
Battelle's new facilities will be used for enlargement of its contract research for industry and government in the atomic energy field.

MIT Plans Nuclear Lab

To commemorate the late Dr Karl T. Compton, Massachusetts Institute of Technology plans to build the Karl Taylor Compton Laboratories for Nuclear Science and Electronics. The $3-million lab will be dedicated to fundamental research exploiting vast peacetime potential of electronic and nuclear science.

Kuhlman Distribution Transformers seldom require maintenance





Because of their design and construction, Kuhlman Distribution Transformers help utilities provide a steady and reliable source of power for American homes at a minimum of maintenance. Construction is sturdy and rigid. Tanks are fabricated of heavy gauge high quality steel, tested, and weatherproofed. For voltages through 4800 V., "Quick-Grip" clamp type insulated bushings simplify installation. Tap changer handle extends above oil level so adjustments can be made easily.

The major portion of Kuhlman pole type Distribution Transformers incorporate the well known Bent Iron Core. This core, permitting the flux path to follow the grain of the steel, utilizes the best qualities of cold-rolled oriented silicon steel. Considerable weight savings, reduction in core loss, and low exciting current result.

By achieving balanced design through the Bent Iron Core and other features, Kuhlman Distribution Transformers are engineered to provide exceptionally good voltage maintenance and high efficiency under varying load conditions. Wide oil ducts permit good oil circulation through the windings, maintaining relatively uniform coil temperatures. Kuhlman Transformers, of course, are vacuum treated to insure against trapped air.

Kuhlman Distribution Transformers are available in single and three phase ratings from 3 to 500 KVA. For complete information, write for Bulletins CS 201, CS 202 and CS 203. Kuhlman also manufactures Power, Dry Type, Saf-T-Kuhl, CSP, Subway and Series Street Lighting Transformers. Write for bulletins on these types as well.

152-T

KUHLMAN

KUHLMAN ELECTRIC COMPANY, BAY CITY, MICHIGAN • Southern Division, CRYSTAL SPRINGS, MISSISSIPPI

EXPORT REPRESENTATIVE: INTERNATIONAL STANDARD ELECTRIC CORP., 15TH FLOOR, 30 CHURCH STREET, N. Y. 7, N. Y. CABLE ADDRESS: MICROPHONE, N. Y.

SIXTY YEARS OF PROGRESS IN THE ELECTRICAL INDUSTRY

MEETINGS CALENDAR

Complete listing of meetings will appear in last issue of each month.

NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION
Region VII, Shirley-Savoy Hotel, Denver, Colo., Oct. 25-26; Region IX, Boise Hotel, Boise, Idaho, Oct. 28-29; Region VIII, Jung Hotel, New Orleans, La., Nov. 4-5; Region II, General Oglethorpe, Savannah, Ga., Nov. 8-9.

***PENNSYLVANIA ELECTRIC ASSOCIATION**
Fall Meeting, Communications Committee, Hotel Abraham Lincoln, Reading, Pa., Oct. 25-26; Fall Meeting, Meter Committee, Split Rock Lodge, White Haven, Pa., Oct. 28-29; Fall Meeting, Transmission and Distribution Committee, Alexander Hotel, Hagerstown, Md., Nov. 4-5; Winter Meeting, Electrical Equipment Committee, Benjamin Franklin Hotel, Philadelphia, Feb. 17-18, 1955.

***NATIONAL ASSOCIATION OF CORROSION ENGINEERS**
Symposium on Corrosion of Underground Structures sponsored jointly by NACE's Niagara Frontier Section and University of Buffalo at university's campus, Buffalo, N. Y., Oct. 27-28; Annual Convention, Palmer House, Chicago, March 7-11, 1955.

PUBLIC INFORMATION PROGRAM
Annual Workshop Conference, Chase and Park Plaza Hotels, St. Louis, Oct. 27-29; Mid-Atlantic Region, Hotel Statler, Washington, D. C., Nov. 12.

SOUTHEASTERN ELECTRIC EXCHANGE
General Sales Conference, Roosevelt Hotel, New Orleans, La., Oct. 28-30; Accident Prevention Committee, Heidelberg Hotel, Baton Rouge, La., Nov. 11-12; Annual Meeting, Boca-Raton Hotel and Club, Boca Raton, Fla., March 21-23, 1955; Engineering and Operation Section, Roosevelt Hotel, New Orleans, La., April 7-8, 1955.

AMERICAN WELDING SOCIETY
National Fall Meeting, Sherman Hotel, Chicago, Nov. 1-5.

LOUISIANA POLYTECHNIC INSTITUTE
3rd Annual Instrumentation Conference, School of Engineering, Ruston, La., Nov. 4-5.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS
Annual Convention, La Salle Hotel, Chicago, Nov. 8-12.

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
Annual Meeting, Haddon Hall Hotel, Atlantic City, N. J., Nov. 8-11; Winter Meeting, Edgewater Beach Hotel, Chicago, March 13-18, 1955.

***EDISON ELECTRIC INSTITUTE**
Industrial Power and Heating Section, Hotel Statler, Cleveland, Nov. 15-16; Industrial Relations Committee in conjunction with North Central Electric Association, Minneapolis, Minn., Nov. 18-19; Prime Movers Committee, Astor Hotel, New York, Nov. 29-30; Industrial Relations Committee, EEI Headquarters, New York, Dec. 16; Industrial Relations Committee, EEI Headquarters, New York, Jan. 20, 1955; 1st Street Tree and Utility Conference, co-sponsored with EEI Transmission and Distribution Committee and Street Lighting Committee of Illuminating Engineering Society, Wade Park Manor, Cleveland, March 3-5, 1955; Sales Conference, Edgewater Beach Hotel, Chicago, March 28-31, 1955; Annual Convention, Statler-Biltmore Hotels, Los Angeles, June 13-16, 1955.

AMERICAN STANDARDS ASSOCIATION
36th Annual Meeting and 5th National Conference on Standards, Hotel Roosevelt, New York, Nov. 15-17.

WISCONSIN UTILITIES ASSOCIATION
Electric-Gas Sales and Engineering Convention, Schroeder Hotel, Milwaukee, Nov. 17-19.

NATIONAL FARM ELECTRIFICATION
1954 Meeting, Van Curler Hotel, Schenectady, N. Y., Nov. 18-19.

***PACIFIC COAST ELECTRICAL ASSOCIATION**
Joint Fall Conference of PCEA's Administrative Service Section and Accounting Section of Pacific Coast Gas Association, Sir Francis Drake Hotel, San Francisco, Nov. 18-19; Administrative Services Section, Phoenix, Ariz., April, 1955.

NEW JERSEY UTILITIES ASSOCIATION
Annual Meeting, Seaview Country Club, Absecon, N. J., Nov. 19.

***AMERICAN SOCIETY OF MECHANICAL ENGINEERS**
Annual Meeting, Statler Hotel, New York, Nov. 28-Dec. 3; Spring Meeting, Lord Baltimore Hotel, Baltimore, Md., April 18-20, 1955.

PUBLIC UTILITIES ADVERTISING ASSOCIATION
Annual Meeting, Region 2, St. Moritz-on-the-Park, New York, Dec. 2-3.

21ST NATIONAL POWER SHOW
Sponsored by American Society of Mechanical Engineers, Commercial Museum, Philadelphia, Dec. 2-7.

INTERSTATE POWER CLUB
Meeting at Hotel Martinique, New York, Dec. 6.

EASTERN JOINT COMPUTER CONFERENCE-EXPOSITION
Sponsored jointly by American Institute of Electrical Engineers, Institute of Radio Engineers, and Association for Computing Machinery; Bellevue-Stratford Hotel, Philadelphia, Dec. 8-10.

ELECTRICAL EQUIPMENT REPRESENTATIVES ASSOCIATION
Annual Meeting, Breakers, Palm Beach, Fla., Jan. 10-12, 1955.

***DOBLE ENGINEERING CONFERENCE**
22nd Annual Meeting, Sheraton Plaza Hotel, Boston, Jan. 24-28, 1955.

***AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS**
Winter General Meeting, Hotel Statler, New York, Jan. 31-Feb. 4; Southern District No. 4, St. Petersburg, Fla., April 13-15; Middle Eastern District No. 2, Columbus, May 4-6; Summer General Meeting, New Ocean House, Swampscott, Mass., June 27-July 1; Fall General Meeting, Morrison Hotel, Chicago, Oct. 3-7, 1955.

MISSOURI VALLEY ELECTRIC ASSOCIATION
Industrial and Commercial Sales Conference, President Hotel, Kansas City, Mo., Feb. 3-4, 1955; Engineering Conference, President Hotel, Kansas City, Mo., March 23-25, 1955.

NATIONAL ASSOCIATION OF PURCHASING AGENTS
24th Annual Mid-Winter Conference, Public Utility Buyers' Group, Shamrock Hotel, Houston, Tex., Feb. 13-15, 1955.

SOUTHERN SAFETY CONFERENCE-EXPOSITION
Jung Hotel, New Orleans, La., Feb. 27-March 1, 1955.

***ROCKY MOUNTAIN ELECTRICAL LEAGUE**
Electric Meter Institute, University of Denver, Denver, Colo., March, 1955; Annual Spring Conference, Shirley-Savoy Hotel, Denver, Colo., April 17-19, 1955.

***NORTH CENTRAL ELECTRIC ASSOCIATION**
Sales Committee Meeting, Radisson Hotel, Minneapolis, Minn., March 6-9, 1955.

OKLAHOMA UTILITIES ASSOCIATION
Annual Convention, Mayo Hotel, Tulsa, Okla., March 24-25, 1955.

***CONTROLLERS INSTITUTE OF AMERICA**
Southern Conference, Mayo Hotel, Tulsa, Okla., March 25-26, 1955.

AMERICAN POWER CONFERENCE
17th Annual Meeting, Sherman Hotel, Chicago, March 30-31, April 1, 1955.

ILLUMINATING ENGINEERING SOCIETY
Pacific Northwest Region Conference, Harrison Hot Springs, British Columbia, April 25-26, 1955.

***AMERICAN SOCIETY FOR TESTING MATERIALS**
Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26-July 1, 1955.

*Additions this week.

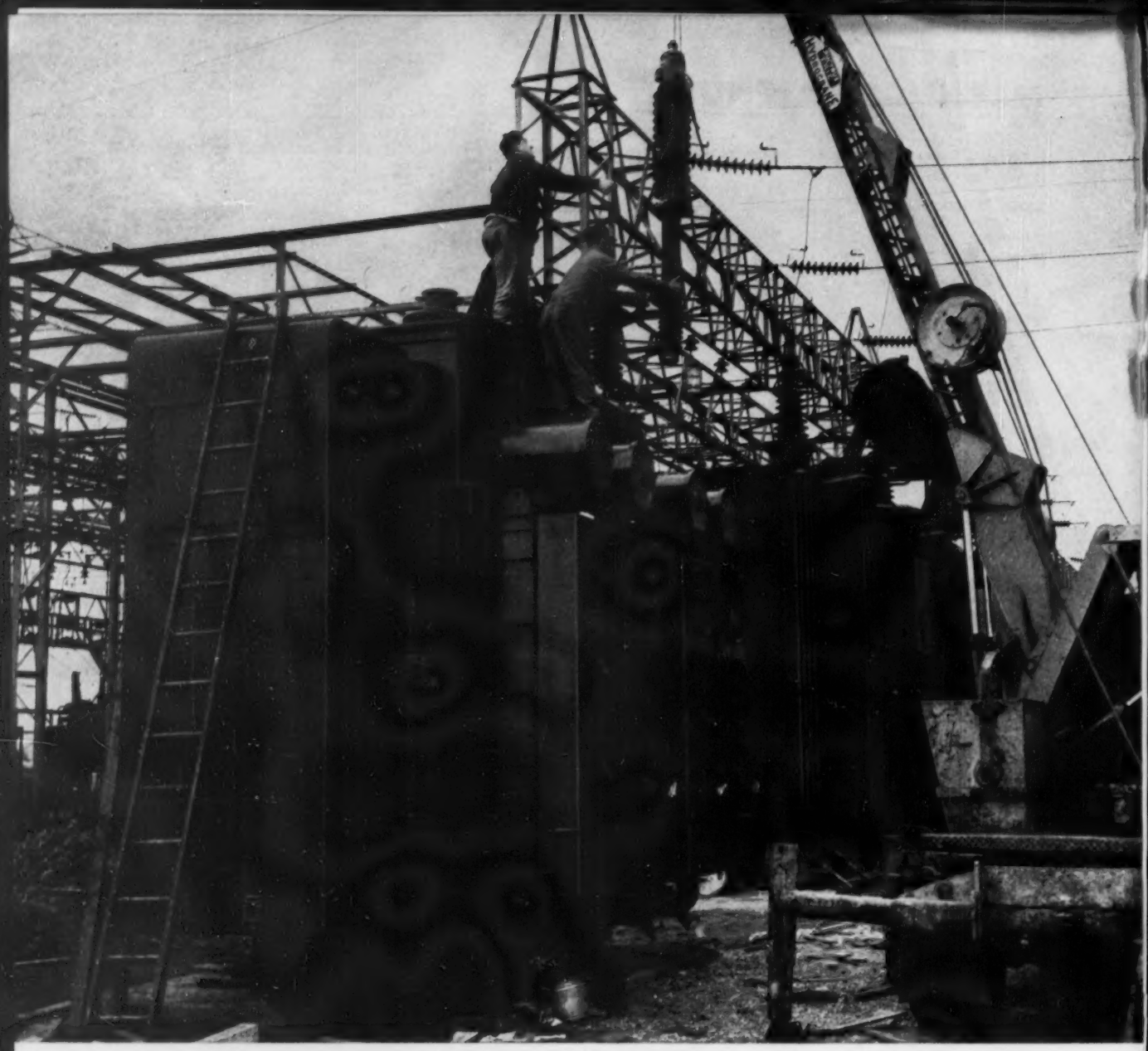
'Package Deal' Would Boost Home Rewiring

Modernization of residential wiring through a "package deal" and the vast potential of the lighting market were underscored at the Pacific Zone annual convention of the National Association of Electrical Distributors, Oct. 3-6, at San Francisco.

"We need a package deal to wrap up home wiring modernization," said William A. Cyr, associate editor, "Electrical West." The plan should allow the homeowner to arrange the design and planning, cost estimates, and financing of the modernization job through one source. He suggested that a local group, such as an electrical league or bureau, is the logical member of the electrical industry to organize and coordinate the efforts of the power company, distributor, contractor, and the lending agency toward a workable package plan.

All segments of the industry must cooperate to meet the goal of 12 additional lighting fixtures and 56 additional bulbs and tubes per home, said Frank M. Falge, manager of Pacific District Sales, Lamp Division, General Electric Co. He estimated the home lighting market will grow from $172 million in 1954 to $516 million in the next decade. Other classes of customers present similar potentials.

He pointed out that 85% of the lighting systems of commercial and industrial customers are sub-standard compared with IES standards. Falge said the total lighting market represented $447 million of sales in 1952 but should climb to about $1.35 billion by 1964.



READY TO CONNECT IN 4 DAYS!

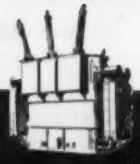
It took six men just four days to move this 40,000-kva General Electric transformer 300 feet from the railroad car, assemble and ready it for connection to the line at the Northfield substation of the Cleveland Electric Illuminating Company.

Like all G-E power transformers, this unit was shipped upright so that it did not have to be tipped at the site . . . and for faster, easier installation, it arrived in a one-piece tank so that no top-section needed to be field-assembled.

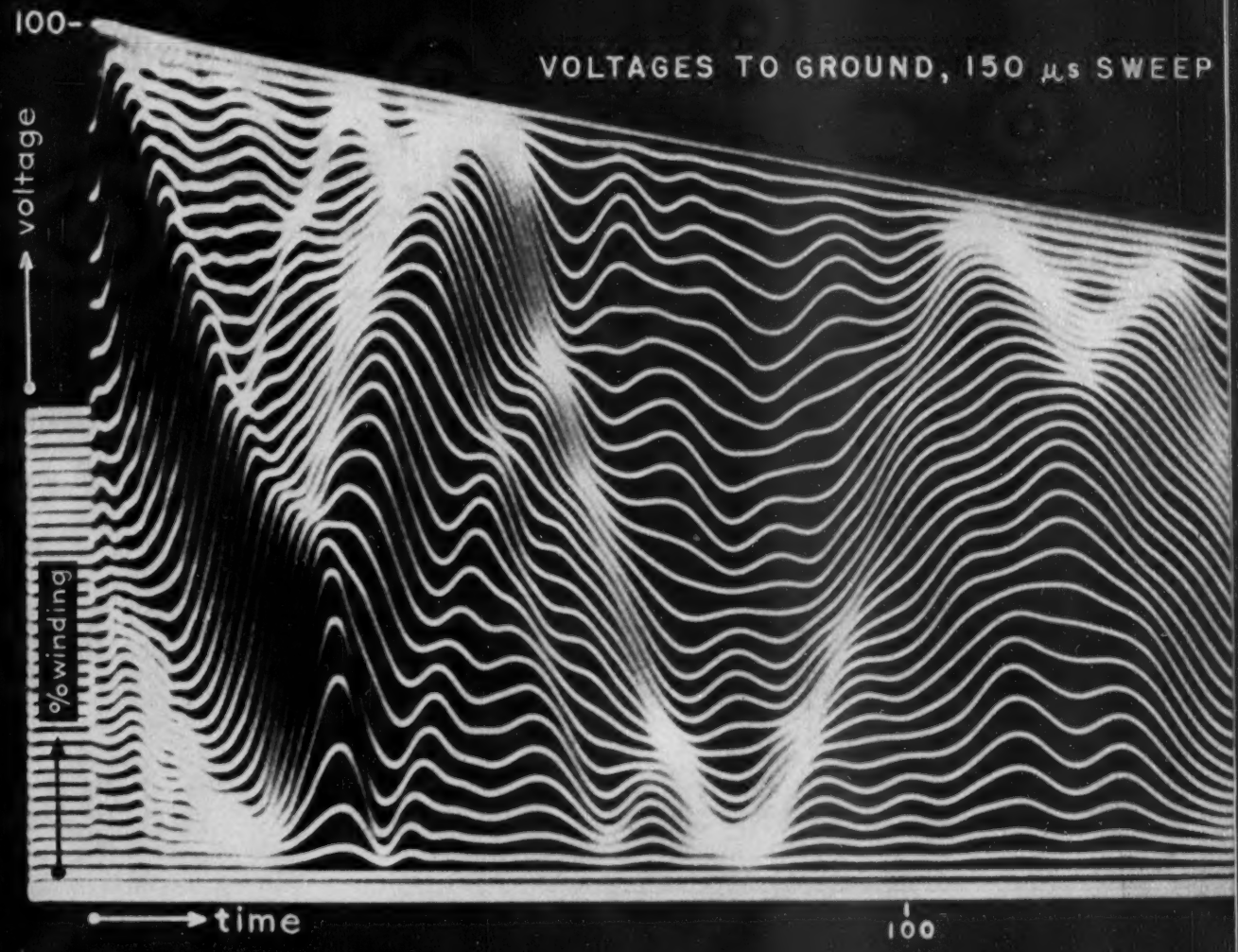
The next time you compare transformers, don't forget to include *installation cost* in your economic analysis. You'll find that you can often make big savings by using G-E units. General Electric Company, Schenectady 5, New York. 421-21

Progress Is Our Most Important Product

GENERAL ELECTRIC



Power Transformer NEWS



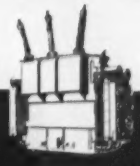
CARDIOGRAM OF A TRANSFORMER

You're looking at the heartbeat of a General Electric power transformer. This oscillogram shows the distribution of impulse voltages to ground at various points in the transformer winding . . . *before* the transformer is built.

A graph like this—made automatically from an electromagnetic model in less than a minute—helps G-E designers predict the performance of the full-size transformer. "Cardiograms" are just one of the techniques G.E. uses to increase the reliability of large units and to speed up their manufacture. General Electric Company, Schenectady 5, New York. 421-23

Progress Is Our Most Important Product

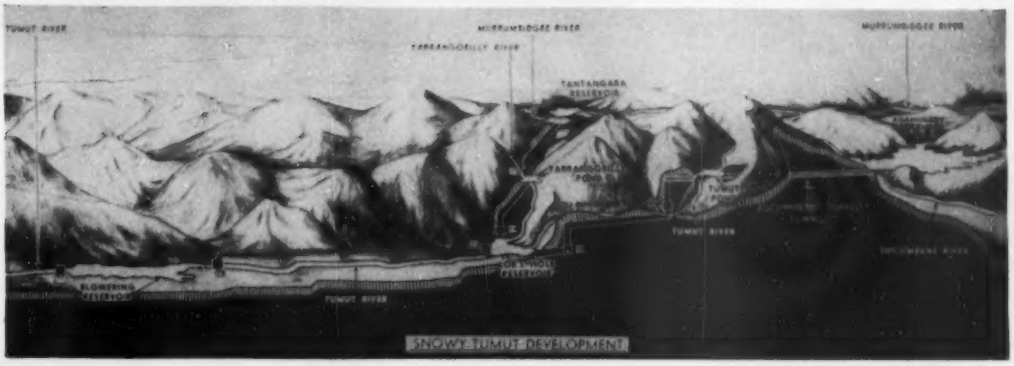
GENERAL ELECTRIC



Power Transformer NEWS

Australia's Snowy Mountain Hydro Development Is One of World's Largest . . .

ILLUSTRATIONS show, above, a section of the Snowy Mountain hydroelectric project's Guthega-Munyang tunnel through which water will flow for 3 miles to Munyang turbo-generators, and, at right, a profile of the whole development, black squares representing power stations



TO SUPPLY POWER FOR CITIES, FARMS

Australia today is building the Snowy Mountain project, one of the largest water development schemes in the world, to supply power to New South Wales, now experiencing a 20% deficiency in power, and to other states. Irrigation for food production is an important secondary motive, for without the project, the Commonwealth could be importing food by 1960, when her population will reach an estimated 10 million.

The scheme, discussed and planned for 70 years, envisions high-level diversion of the upper Snowy and Eucumbene Rivers across the Great Dividing Range and into the valley of the Murray and Murrumbidgee Rivers. The Snowy Mountain Hydroelectric Authority, set up by the Commonwealth with the consent of New South Wales and Victoria in 1949, administers the 20-year, $1-billion project.

Studies recently disposed of the objection that thermal power could be cheaper. It has been determined that use of stations for 11 hr daily, a load factor of 46.7%, would produce savings of some $3.2 million a year compared with the cheapest thermal power. A recent downward revision of estimated cost of the project indicated possible savings of close to $45 million.

Divisions of Project . . . The project is divided into the Snowy-Murray and Eucumbene-Tumut developments. The first contemplates diversion of the Snowy River at Jindabyne to the upper Murray valley by a 30-mile tunnel and a system of power stations in the upper Snowy and Geehi valleys. The Eucumbene-Tumut development provides for diversion of the Eucumbene to the Tumut River by a 14-mile, concrete-lined tunnel and a system of power stations on the Tumut. The Upper Murrumbidgee will be dammed and diverted to the Tumut through power stations in the Yarrangobilly valley.

Ten stations in the first and seven in the other development will have a total installed capacity exceeding 3 million kw. Generating plants will range from the 20,000-kw Geehi shaft station to the 540,000-kw stations at Bogong Creek and Swampy Plain. Six major dams will impound about 6 million acre-ft of water, and 85 miles of large-diameter tunnels through the mountains will bring water to the western slopes. From these storage reservoirs, approximately 750,000 acre-ft will go annually to the Murray valley for irrigation and 1 million acre-ft to the Murrumbidgee. This is five times the water in Sydney Harbor, one of the world's greatest ports. Mountain streams will be diverted to storage over 400 miles of race lines of varying cross-sections.

Guthega Dam . . . The Selmer Co of Norway is designing and constructing the first permanent installation at Guthega Dam. A 100-ft high dam with a crest length of 225 ft will cross the upper Snowy River immediately below its juncture with the Guthega River to create Guthega Pond. Impounded water will flow through a 3-mile, 1,500-cfs-capacity pressure tunnel to furnish power for three 30,000-kw turbo-generators at Munyang operating under a normal head of 820 ft. A 60,000-kw block of power will be available this year.

The Public Works Department of New South Wales is building the Adaminaby Dam on the Eucumbene. This $36-million, 390-ft-high dam, impounding 3,860,000 acre-ft of water, will be one of the largest earth-and-rock-filled dams in the world.

Tunnels . . . Two contracts for $60-million have been let to the Kaiser-Walsh-Perini-Raymond Joint Venture Group for tunnels and appurtenant works to divert water from Adaminaby reservoir to Tumut Pond. The Eucumbene-Tumut concrete-lined tunnel will be 14 miles long and have an inside diameter of 21 ft. A

Scheme to boost available power by 13% will be financed by power sales

dam and junction shaft at the confluence of the Happy Jacks and upper Tumut Rivers will take surplus flows into the tunnel. The concrete diversion dam at the junction shaft will be 100 ft high and 260 ft long at crest level. Near the Tumut outlet, a control gate, operating under an unbalanced head of about 373 ft on one side and 233 ft on the other, will control flow within the tunnel.

Normally flows will be from the Adaminaby reservoir to Tumut Pond, but during excess flows on the Tumut the direction of flow in the tunnel can be reversed to send water into Adaminaby reservoir. Tumut Pond, a concrete arch dam, 290 ft high and 750 ft in crest length, will impound 43,500 acre-ft. From Tumut Pond, a 21-ft-inside-diameter, concrete-lined pressure tunnel, 1½ miles long, will connect with two 12-ft-diameter, vertical steel-lined pressure shafts. These are 830 ft below and 370 ft above tunnel line for a drop of 1,200 ft. They will carry water to the underground power station housing four 80,000-kw turbo-generators.

From the station's transformer bay, power will be carried to the surface at 330 kv. The first 80,000-kw block of power will be available by 1958, increasing to 320,000 kw by mid-1959. These works will increase available power in New South Wales by 33% and in Australia by 13%.

Transmission . . . Early reports of the transmission of generated power to load centers indicate that about two-thirds of the available power will be portioned to the main load centers of Sydney and other cities in New South Wales and about a third to Melbourne in Victoria.

Transmission costs, including easements, transmission lines, step-up and step-down transformers, synchronous condensers, and communications, will be nearly a quarter of the total cost of the scheme.

Effect on Economy . . . Impact of this project on Australian economy can be gauged by the fact that the ultimate power potential exceeds the total capacity of all generating stations operating in the Commonwealth today. The waters from the Adaminaby storage reservoir alone will be enough to establish some 2,500 new 80-acre irrigation farms, a total acreage equal to that now under irrigation in the Murrumbidgee area. Approximately 360,000 acres of dry land will be brought under cultivation.

The scheme will provide an estimate saving of $20 million a year in the cost of electric power, and the water diverted to irrigation will produce annually about $5-million in food stuffs.

Furthermore, the sale of power will finance the entire development.

To provide for an ultimate construction force of 8,000 in 1955, new townships are planned at Adaminaby, Jindabyne, Island Bend, Cabamurra, and Cooma, headquarters of the authority. More than 2,000 homes will be built, half of which will be at Adaminaby and Jindabyne, where the old towns will be submerged by the reservoir.

WORKS FORCE BARRACKS have been built at Tumut Pond and other major construction sites. Some 8,000 workers will be on the job

WESTINGHOUSE TYPE SL DISTRIBUTION TRANSFORMERS

ALL THE STANDARDIZATION SAVINGS PLUS

Windings tailored to electrical characteristics

Westinghouse Standardized Type SL Distribution Transformers save delivery time (they're in stock now), save in initial, installation, operating and maintenance costs with a design proved sound by years of customer acceptance.

And in addition—three basic winding designs are used to give you a transformer tailored for each standard voltage and current requirement.

The most widely used of these windings is the Lowgrocap* (low ground capacitance) cylindrical coil design for low-voltage, station-type transformers. Besides being lighter and smaller, Lowgrocap is exceptionally capable of evenly distributing electrical stress caused by lightning or switching surges.

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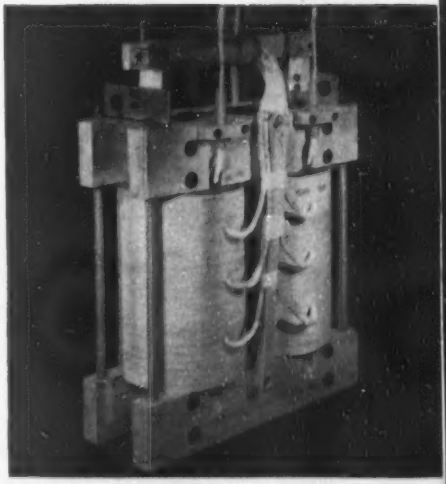
Hipersil® cores, all-welded steel tanks, the Type WSB no-load tap changer and many other standard design features make Westinghouse SL Transformers your logical choice for any substation application.

Call in your Westinghouse Representative today for details. Or, if you prefer, write direct for B-6134 to Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa. J-70717

*Trade-mark



Lowgrocap winding for low-voltage, station-type transformers.

YOU CAN BE SURE... IF IT'S Westinghouse

Helping the industry meet its growing loads

Solved: A long-time problem in high-voltage switching

A low-cost switch to *safely* interrupt load currents on high-voltage transmission lines has long been the need of utility engineers. Conventional disconnects are not suitable for this job because of the ever-present danger of an unconfined arc causing a fault.

Now, after a great deal of interesting research, Westinghouse engineers have developed the VLB switch which not only safely interrupts load current, but also line-charging currents and transformer magnetizing current.

The VLB switch is essentially a standard disconnect with the addition of a small interrupter chamber. The interrupter chamber, permanently sealed and gas filled, houses the contacts which are the current interrupters. These contacts are actuated by a quick-break mechanism which, in turn, is tripped by the main switch blade as it rises, after being released from the stationary contact jaws.

Development of the VLB switch was complicated by the factors that had to be considered—weight, size and cost. These requirements were met by the use of sulphur hexafluoride, SF_6, halogen compound gas, with an arc interrupting ability *100 times better than air*. Less than six inches of contact separation are required in SF_6 at atmospheric pressure to interrupt 115-kv circuits. Interruption is further improved by application of the De-ion® principle: small puffers blow fresh un-ionized gas through the arc when the contacts open.

The great expansion in today's power systems makes the new VLB switch all the more timely. It is another good example of constant efforts by Westinghouse to provide the utility industry with quality equipment designed to help solve operating problems.

J-97175

YOU CAN BE SURE...IF IT'S Westinghouse

The intriguing properties of sulphur hexafluoride

The superior dielectric qualities of many of the halogen compound gases have become known to science during the last 15 years. Of particular interest to Westinghouse scientists is sulphur hexafluoride (SF_6) which is extremely stable and inert, remains a gas down to comparatively low temperatures (–62°C at normal pressure), and is comparable with oil in dielectric strength at only 30 pounds per square inch gauge pressure. Using these known qualities, it wasn't long until the engineers discovered, with the aid of a small test interrupter, that the currents which could be interrupted in SF_6 were 100 times greater than with air!

The arc quenching ability of SF_6 is far out of proportion to its straight insulating ability as compared with air. This results from the fact that the main factor to consider in arc quenching is not so much the dielectric strength of the medium used as its *rate of recovery* of dielectric strength, near current zero. It is the high rate of recovery of dielectric strength of SF_6 which makes it more desirable than air or the other halogen compound gases for arc quenching. A discussion of SF_6 entitled *An Investigation of the Arc-Quenching Behavior of Sulphur Hexafluoride* has been put in pamphlet form by Westinghouse engineers. Write for a copy.

Gas lasts life of switch

The interrupter is permanently sealed with 30 psi of gas pressure. It will interrupt nameplate rating at only 15 psi gas pressure, thereby assuring long life and dependable operation. Pressure is shown on a gauge which can be read from the ground. Since practically no gas is used in the interrupting operation, it is not anticipated that any recharging with gas will be necessary during the life of the switch.

100 miles, 600 amperes, or 100,000 kilovolt-amperes

The VLB switch is available in ratings from 7.5 kv to 115 kv with a continuous capacity of 600 amperes. This means that the VLB can be used for interrupting load current of 600 amperes, charging current for 100 miles of line, and magnetizing currents for transformer banks up to 100,000 kva. Since it requires only slightly more space, the VLB can be used to replace conventional disconnects.

Extensive tests in the lab and field

Like all Westinghouse products going into critical service, the VLB has undergone exhaustive testing in the laboratory and in the field. The 115-kv switch was set up with 70 kv across the contacts (the value encountered in 115-kv service). Under these conditions, it successfully interrupted 600 amperes at 50% power factor for 230 operations. The same switch then interrupted 56 amperes of static capacitor current 100 times and was in good working order at the conclusion of the test. Another unit interrupted 90 amperes of capacitor current on a 34.5-kv system a total of 2020 times.

Units have been extensively tested and are now in service on the Niagara Mohawk Power Corp. system. For more information on VLB switches write: Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pennsylvania.

Central P&L Elevates Lovelady

Texas utility promotes veteran employee to vice president. Newly elected official will retain his post as chief engineer

M. H. LOVELADY

M. H. Lovelady, chief engineer of Central Power & Light Co, has been appointed a vice president of the Corpus Christi, Tex., utility.

In addition to his new duties as vice president, Lovelady retains his position as chief engineer. His election fills a vice presidential vacancy which occurred when J. L. Bates, formerly vice president and general manager, was advanced to president and general manager of Central P&L (EW, Oct. 4, p 162).

Engineering Experience . . . Lovelady, a native of Tyler, Tex., has been a member of the Central P&L organization since 1926. He served the utility in various engineering capacities until 1943, when he became assistant chief engineer. He was promoted to chief engineer in 1952.

Prior to joining Central P&L in the twenties, he was employed by Texas Power & Light Co in Dallas.

Lovelady is a member of the American Institute of Electrical Engineers. His professional activities include serving on various committees of AIEE, Edison Electric Institute, and the South Texas Electrical Systems.

PP&L Reassigns Thoman, 3 Others

Promotion of E. O. Thoman, district manager at Corvallis, Ore., for Mountain States Power Co and more recently Pacific Power & Light Co, to a new position as assistant to the general manager of PP&L has been announced by Pacific's George T. Bragg, vice president and general manager. Thoman will be in the company's Portland headquarters.

Thoman had been Corvallis district manager since 1951 and in his new work will assist in administration problems involved in coordinating the districts and divisions of Pacific P&L, which recently merged with Mountain States. Bragg explained the merger has greatly increased the need for intense co-ordination of the company's system in four Pacific Northwest states.

Other changes were also made. Succeeding Thoman will be Daniel Webster, 20-year PP&L veteran and manager of Seaside operations. Taking over at Seaside will be Kenneth A. House, a 28-year company veteran and for the past 4 years manager at Hood River. Moving in at Hood River will be Wilfred C. Sundby, district sales supervisor at Pendleton and a Pacific P&L employee since 1940.

•

Charles C. Shackford has been named product engineer of the Electrical Wire Division of the John A. Roebling's Sons Corp, succeeding **B. R. Hubbard,** who resigned to accept another position. Shackford joined the company as a student engineer in the Electrical Wire Division in 1935.

Byron K. Taylor, member of the Eugene (Ore.) Water and Electric Board staff since 1931, has been appointed assistant superintendent to succeed **Byron L. Price,** who resigned to become assistant administrator of the Bonneville Power Administration. Taylor for the past several years has been chief civil engineer and in charge of the Oregon municipal system's hydroelectric plants and planning. Before joining the Eugene organization, Taylor was on the engineering staff of the Portland General Electric Co and the Washington Water Power Co and for the Interstate Commerce Commission.

William W. Kuyper, an electrical engineer, has been made manager-manufacturing engineering of the large steam turbine-generator department of General Electric Co. Kuyper, who started with GE in 1933, joined the engineering staff of that department in 1953 as project engineer for the new turbine development laboratory.

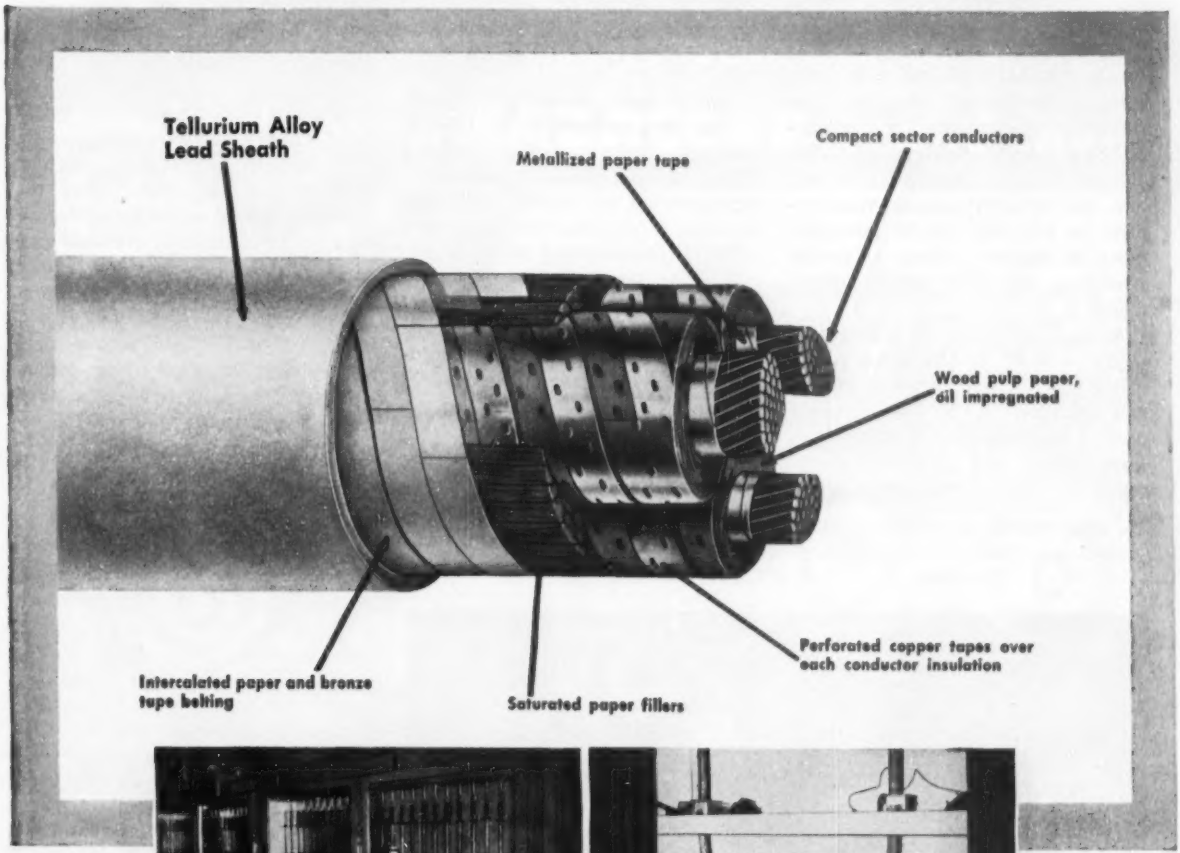
Walter E. Max has been named general superintendent of Worthington Corp's Buffalo (N. Y.) Works. Succeeding Max as manager of the Buffalo service and erection department is **Harry P. Yount,** formerly assistant manager of that department. Yount's successor is **John J. Hoefner,** who has been with Worthington since 1948.

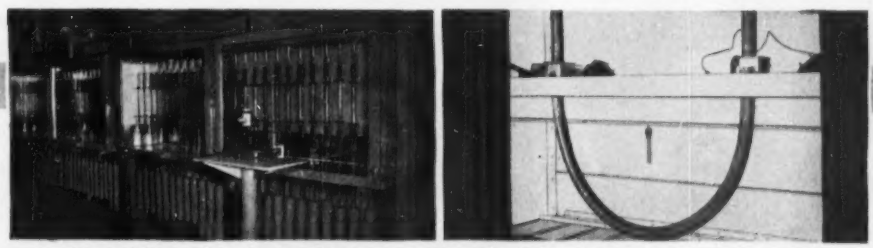
T. E. Curtis has been named chief engineer of protective devices and power switching equipment of A. B. Chance, Centralia, Mo. For the past 15 years, he has been with Southern States Equipment Corp. Curtis, an electrical engineer, was chief engineer of that company's Electrical Division for several years before joining the Chance organization.

Made a Vice President

O. O. Schreiber, assistant to the president of Philco Corp for the past four years, has been named a vice president of the corporation. Schreiber, however, will continue to handle special assignments for the president and chairman of the board, and will act as secretary to the policy and management operations committees and chairman of the co-ordinating committee of Philco Distributors, Inc. He became associated with the Philco organizations in 1931.

FOR INCREASED LOAD REQUIREMENTS...PAPER INSULATED CABLE WITH TELLURIUM ALLOY LEAD SHEATH


Tellurium Alloy Lead Sheath
Metallized paper tape
Compact sector conductors
Wood pulp paper, oil impregnated
Perforated copper tapes over each conductor insulation
Intercalated paper and bronze tape belting
Saturated paper fillers



Some of the specially-developed testing equipment with which Roebling maintains quality control of the production of Tellurium Alloy Lead Sheath. #1 Temperature control ovens for creep test of strips cut from tellurium alloy lead cable sheathing. #2 Temperature control oven for bending fatigue test of full cable section.

YOU'LL REALLY solve power cable headaches with Roebling Paper Insulated Cable with the new Tellurium Alloy Lead Sheath*, a Roebling exclusive. Here are some of its outstanding advantages:

1–Tellurium Alloy Lead Sheathed Cable has a lower long-time creep rate;
2–Extra high fatigue resistance;
3–High bursting strength;
4–Exceptional stability under heat application as in duct splicing and wiping;
5–Abolishes need for frequent stop joints or reinforced lead sheath;
6–Doesn't require generous expansion bends or large manholes;
7–Heat application in splicing leaves its desirable properties unimpaired.

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Makes Engineering Changes

Southern California Edison Co has made a series of personnel changes in its engineering and operating departments.

The changes call for Vice Pres W. L. Chadwick to assist the vice president and general manager in responsibility for engineering and technical functions of the company. C. M. Cavner, formerly manager of operation, was appointed assistant vice president to help the general manager's office in matters relating to system operation and other special assignments.

Succeeding Cavner as manager of operation is W. E. Montgomery, formerly general superintendent of system operation. R. N. Coe, formerly general superintendent of distribution, transmission and communications, was made assistant manager of operation.

D. A. Denholm was promoted from chief production engineer to superintendent of system operation. E. W. Messer, formerly production engineer, was designated chief production engineer.

Other moves include appointment of executive assistant E. N. Husher, who was formerly assistant manager of operation, to direct the automotive transportation and mobile equipment activities. T. C. Stavert advances from assistant superintendent of hydro generation to superintendent of hydro generation, and R. T. Enloe moves from superintendent of the Northern Hydro Division to assistant superintendent to hydro generation. He will take up his new duties at Los Angeles.

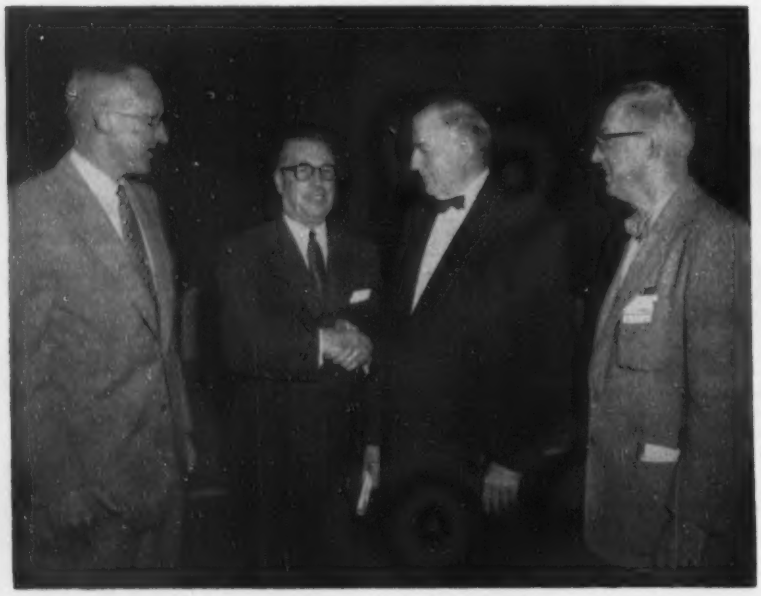
R. B. Cowden was promoted from assistant to Enloe to Northern Hydro Division Superintendent. H. L. Wheeler, Jr, goes from administrative assistant to assistant Northern Hydro Division superintendent, and L. W. Wood goes from station chief at Big Creek Powerhouse No. 1 to Wheeler's former position of administrative assistant.

•

Howard C. Kramer has been made manager of the Belmont (Mass.) Municipal Light Department to replace **Chester L. Howe,** who has retired. With the department since 1927, Kramer has successfully filled the positions of head of the meter department, superintendent of overhead construction, and plant engineer. Since last May, he has served as assistant manager acting as manager. Howe, who came to the department in 1926 as assistant manager, was named manager in 1939. He was granted leave of absence in May will full retirement effective Sept. 30.

Alan R. Bailey has been made assistant to the vice president and general manager of Pacific Gas & Electric Co. He was formerly vice president in charge of operations of Coast Counties Gas & Electric Co, which with its parent firm, Pacific Public Service Co, merged with PG&E.

Carroll G. Appleman has been appointed to the post of application engineer in Line Material Co's Milwaukee headquarters, where he will be concerned with problems in the fields of power switching and substation structures. An electrical engineer, Appleman has had several years of industrial and utility experience in development engineering of substation standardization and switching equipment application.



New Officers Elected by Indiana Group

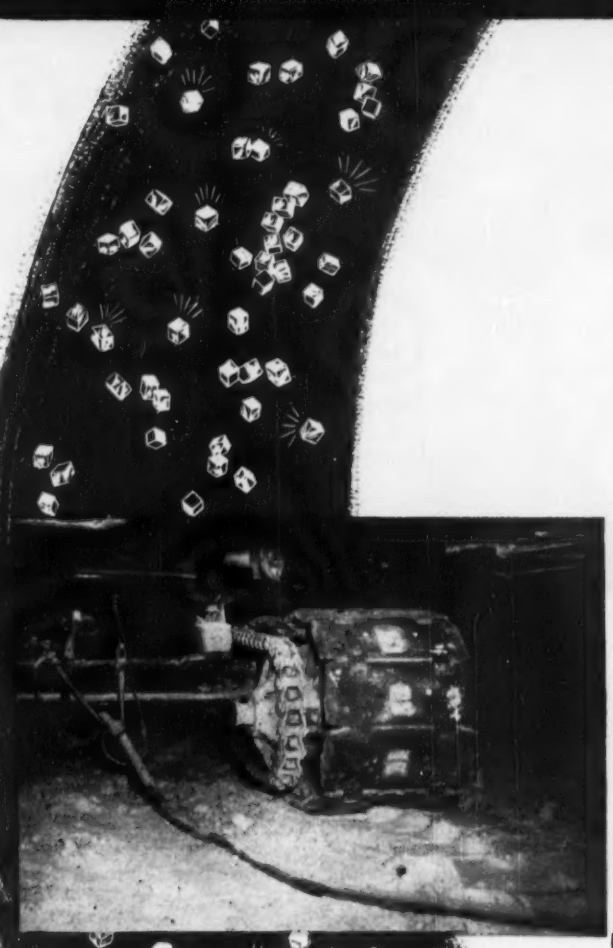
Dean H. Mitchell, president of Northern Indiana Public Service Co, has been elected president of Indiana Electric Association. Mitchell (second from left) is shown being congratulated by the retiring president, R. A. Gallagher of Public Service Co of Indiana. Onlookers are the association's new vice president, J. C. Hill (at left) of Indiana & Michigan Electric Co and re-elected secretary-treasurer, A. C. Crandall.

This is the second time Mitchell has held the presidency, having assumed the post in 1943. Since then, he has been a member of the group's board of directors and vice president in 1953.

Heads New Office

William F. Rooney, formerly a new business representative for Ebasco Services, Inc, has been placed in charge of that firm's newly opened office in Portland, Ore. Prior to joining Ebasco in 1950 as a sales consultant, Rooney was associated over a period of years with Edwards Co, Sylvania Electric Products, Inc, Westinghouse Electric Corp, and Westinghouse Electric Supply Co. He began his career with Boston Edison Co, moving later to Western Massachusetts Electric Co.

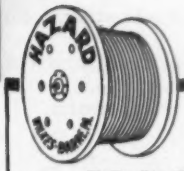
Jefferson Island salt mine standardizes on HAZACORD . . . and saves



The Jefferson Island Salt Mine—where salt analyzes better than 99% pure NaCl—is located 1,000 feet below sea level at Jefferson Island, Louisiana. Operating conditions in the salt beds are so difficult that ordinary cables were chewed up by the abrasive action of the salt. Before standardizing on Hazacord Portable Cables, 25 to 40 man hours per week were spent on repairs to the portable cables used on undercutters, jumbo drills and electric shovels. Now—with Hazacord—this costly repair work is eliminated.

Toughness to resist abrasion, twisting and flexing, such as in this installation, is built into every Hazacord by vulcanizing the Hazaprene ZBF sheath in a continuous metal mold. The Hazaprene sheath resists such destructive agents as acids, alkalies, moisture, and most oils and greases. Hazard heat-resisting insulation assures long electrical life because of its high safety factor under all operating conditions.

Consult your Hazard representative for recommendations on the Hazard cable applicable to your operating conditions or write Hazard Insulated Wire Works, Division of The Okonite Company, Passaic, N. J.



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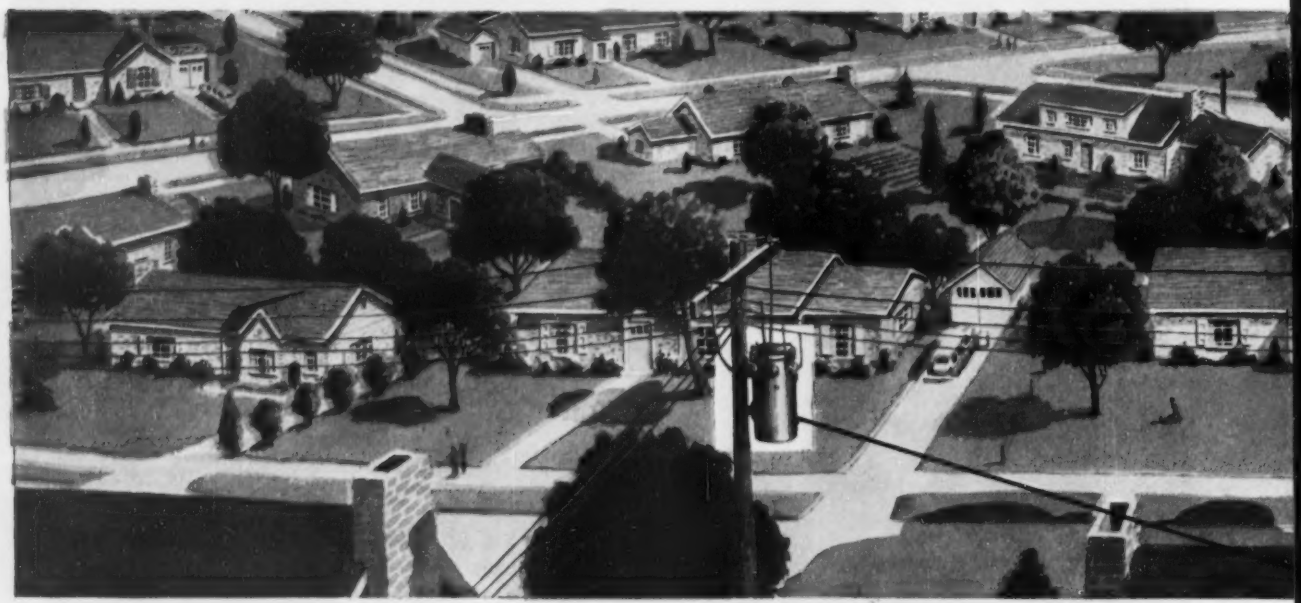
MOLONEY . . . ALL ALONG

For years the name Moloney on a transformer has meant a better product. As utilities have grown and become more complex, so have transformers. All this expansion in the power field has been paralleled by expansion here at Moloney. Many utilities feel that Moloney Transformers are the best you can buy. They are right, because—



Take, for instance, Distribution Transformers; Of very serious concern in utility planning, is the necessity of investing more capital in operating equipment. System planning is encountering greater load demands that often require larger Kva distribution transformers than those which formerly were adequate. Moloney HiperCore Distribution Transformers, in addition to superior operating characteristics, offer weight advantages which in most cases eliminate the necessity of replacing existing poles with larger ones when installing larger Kva transformers.

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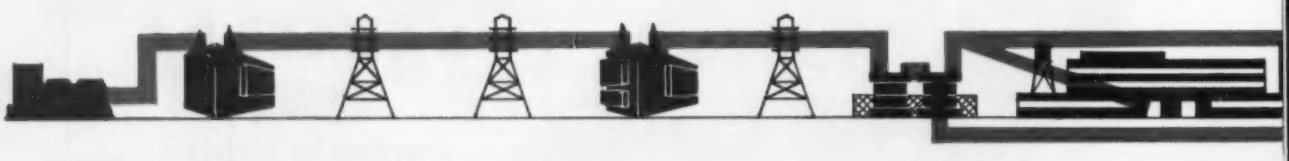

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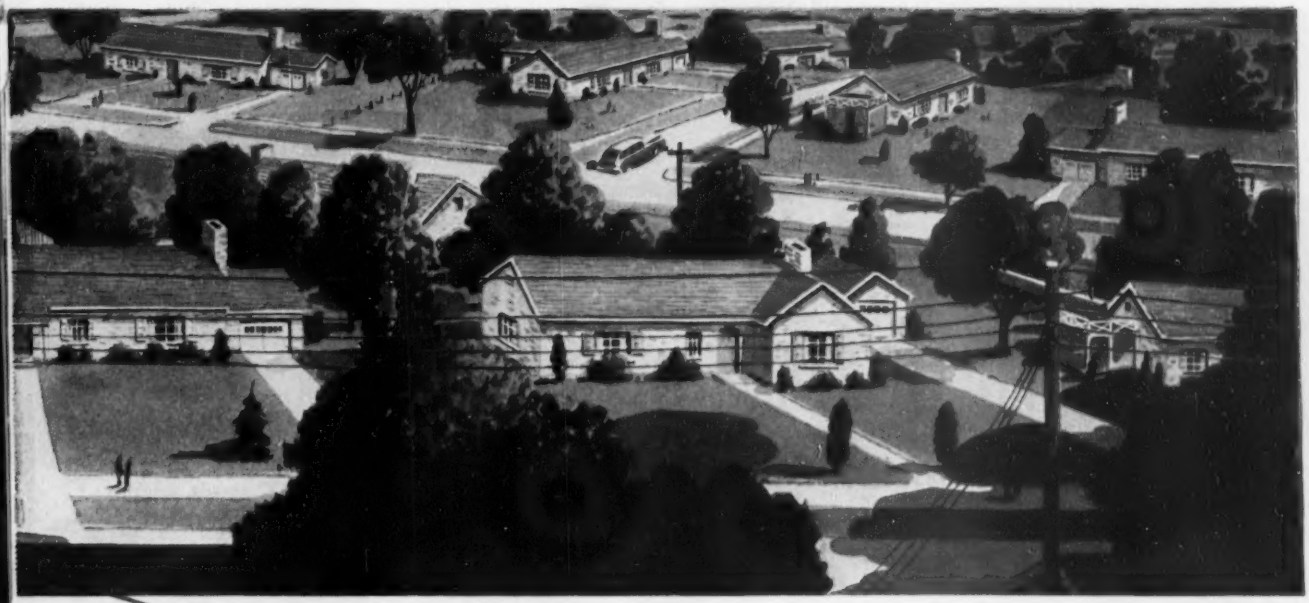
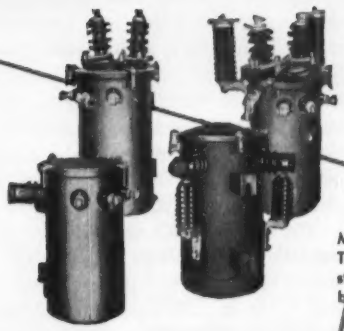
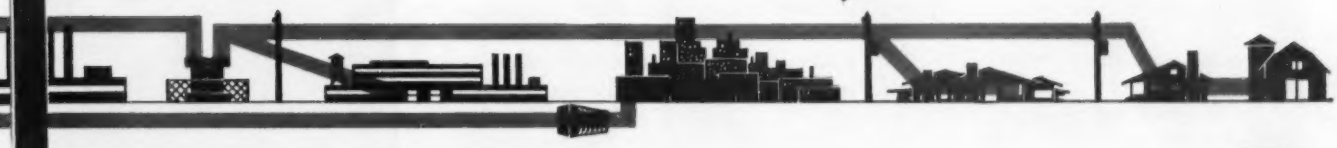




Moloney HiperCore Distribution Transformers are available in all standard ratings from 3 Kva up in both Conventional and CSP designs.



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SATURDAY MORNING problem clinics are attended by Harry K. Ihrig, second from right. With him are, left to right, Dr Silas M. Evans; Dr Walter Zeit; Dr Hiram B. Benjamin, rear; and Dr Clement A. Fox

FROM IHRIG TO EVANS BY CHANCE

A Double Play For Industrial-Medical Research in Milwaukee

During the many months when the wife of Harry K. Ihrig, vice president of Allis-Chalmers Manufacturing Co, was seriously ill, he became closely associated with Dr Silas M. Evans, the attending physician. A series of successful research developments resulted from this industrial-medical combination.

Ihrig, in addition to his industrial research activities, long had been interested in medical research. His future efforts with Dr Evans, an assistant professor of medicine, and his associates at Marquette University were a natural consequence.

Their real work together began by chance when Dr Evans mentioned a problem with which he was faced. Ihrig said he thought a solution to the problem could be reached through the use of some of the industrial research facilities and talent which were available to him.

This first project was so successful that it led to others and eventually to regular Saturday morning visits by the A-C research director with a group of Marquette's medical staff. The result was a pooling of medical and industrial research towards the solution of problems in the medical field.

One of the first, and best known, of these developments was that of an improved nerve stain which made possible detailed study of the structure of various nerves. Other advances followed including: a blood plasma substitute from okra; equipment for the study of arteriosclerosis and the probability of its development in a patient; determination of the metallurgical structure of dental amalgams; a high-accuracy, high speed temperature indicator for studies in transient body conditions; and an "inside-out" saw which greatly simplifies some types of hip operations.

The "inside-out" saw can be inserted into the bone through a ½ in. hole. Once inside, the saw can be adjusted to cut out a 1⅛-in. circle. The substitution of a metallic member can then be completed with a minimum of disturbance to the cartilage and muscles. The process is reduced to one operation instead of the two required by previous techniques, reducing considerably the patient's pain and lost time.

When the description of the "inside-out" saw was read before a recent meeting of the American Association of Orthopedic Surgeons, there were numerous requests for detailed drawings so that the surgeons could have such tools made for themselves. Allis-Chalmers Research Department supplied these working drawings.

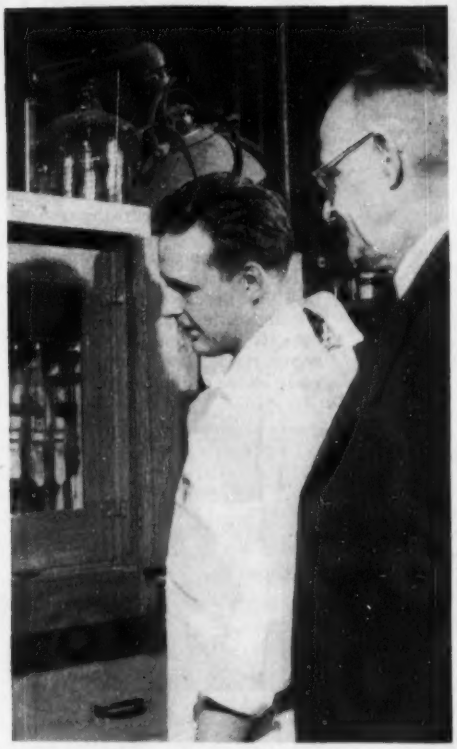
ELECTRONIC circuits, amplifier increase the accuracy of high-

'INSIDE-OUT' saw was one of Ihrig's earlier developments

speed temperature measurements of body conditions in stomach, using a thermocouple externally or internally

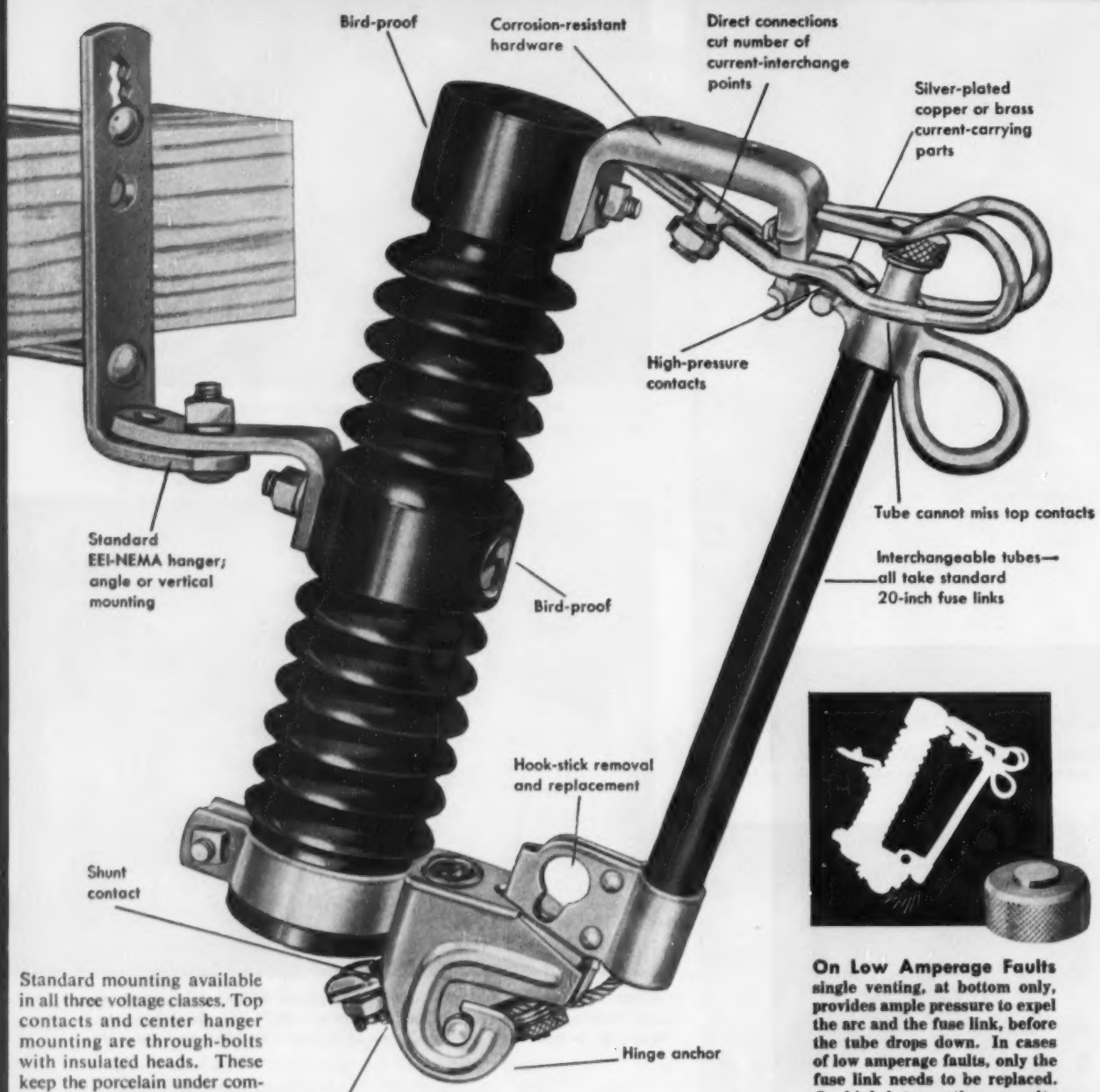
DR EVANS, IHRIG, AND DR ZEIT check results of photoelectric method which was developed to measure the amount of deposit causing arteriosclerosis

BLOOD PLASMA substitute was successfully produced from okra in one of the early developments shared by Dr Benjamin, Ihrig, and Dr Zeit. Small tube contains plasma concentrate extracted from okra powder in large bottle at right



ARTERIOSCLEROSIS research is being advanced by pulsating equipment built under direction of Ihrig

IHRIG AND DR FOX look over photomicrographs where nerve stain was used. The former's knowledge of zinc chromates led to their use in nerve stain to make possible the study of nerve diseases. Process has gained international usage


Bird-proof
Corrosion-resistant hardware
Direct connections cut number of current-interchange points
Silver-plated copper or brass current-carrying parts
High-pressure contacts
Tube cannot miss top contacts
Standard EEI-NEMA hanger; angle or vertical mounting
Bird-proof
Interchangeable tubes—all take standard 20-inch fuse links
Hook-stick removal and replacement
Shunt contact
Hinge anchor
Direct connections cut number of current-interchange points

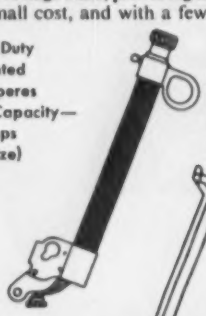
Standard mounting available in all three voltage classes. Top contacts and center hanger mounting are through-bolts with insulated heads. These keep the porcelain under compression, providing added strength and a completely bird-proof design.

On Low Amperage Faults single venting, at bottom only, provides ample pressure to expel the arc and the fuse link, before the tube drops down. In cases of low amperage faults, only the fuse link needs to be replaced. On high interrupting capacity cutouts, the expendable cap, above, right, remains intact, the same as the solid cap.

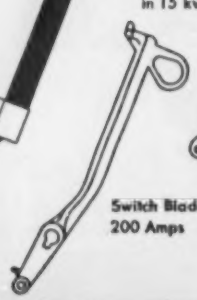
Fuse cartridges and switch blades are completely interchangeable in each voltage class, providing immediate increase in interrupting capacity at small cost, and with a few seconds work with a hook-stick.

Standard Duty Single-vented 3000 Amperes Interrupting Capacity—(2000 Amps in 15 kv size)

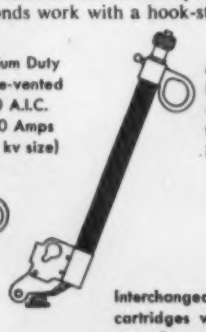
Heavy Duty Double-vented 10,000 A.I.C. (8000 Amps in 15 kv size)



Medium Duty Single-vented 5000 A.I.C. (4000 Amps in 15 kv size)

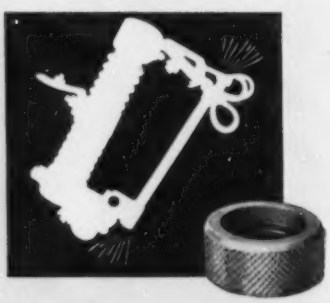


Switch Blade 200 Amps

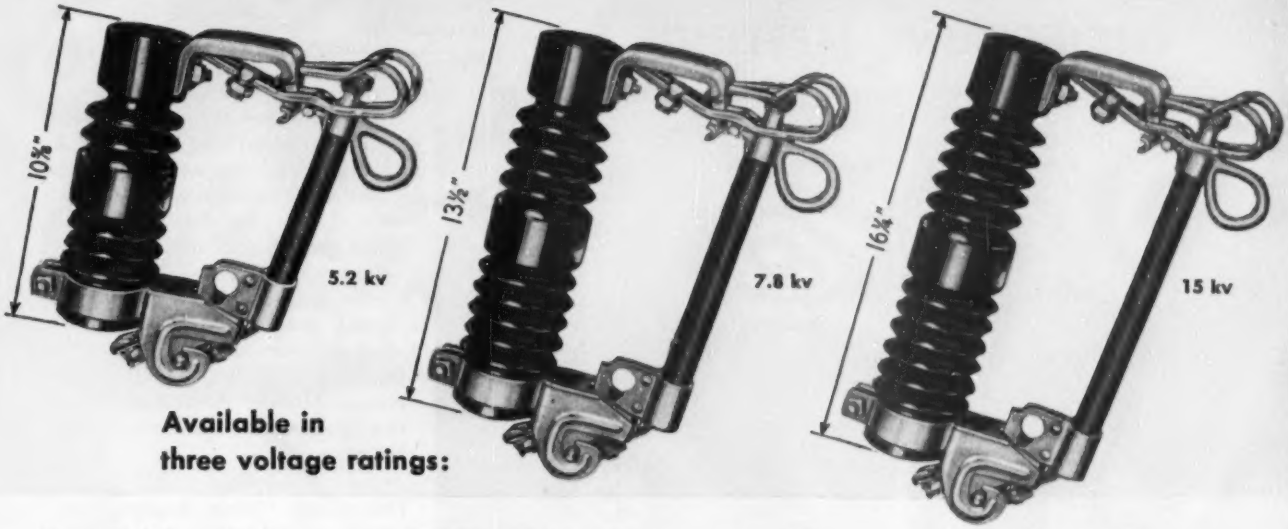


Medium Duty Double-vented 6000 A.I.C. (4000 Amps in 15 kv size)

Interchangeable load-break cartridges will be available soon for each voltage class cutout. Easy pulling action will break link inside tube, and arc is cleared before tube can drop.



On High Amperage Faults pressure automatically opens the expendable cap at the top to provide double venting. No bursting of tubes. Gas flashover is eliminated because no cutout parts are in the path of gas discharge.



Available in three voltage ratings:

L-M's New "HDO" Open-Type Cutouts... The Cutout Development Of The Year!

New "HDO" 100-ampere cutouts are the simplest, most rugged, easiest to operate in the industry today. Provide high interrupting capacity, bird-proof design; heavy construction, assuring economy.

By R. W. KELLY
Application Engineer
Protective and Switching Equipment Division
Line Material Company

Here's a big new development in open-type cutouts that offers you a tremendous improvement in performance, operation, and economical long life.

The "HDO" is a big, rugged cutout. It is strong, durable. It's the easiest cutout to operate you ever saw. Complete hook-stick removal and replacement of cartridges. Bird-proof construction. Silvered current-carrying parts with few current-interchange points assure ample capacity without overheating. And it operates equally well on high and low fault currents.

Positive Pressure Control

A feature of the "HDO" is L-M's exclusive pressure-controlled expendable cap. On low faults the pressure is confined, assuring consistent, reliable arc interruption. On high faults the diaphragm in the cap opens, relieving the pressure by providing double venting.

Complete Line of Cutouts

Prices for the "HDO" cutouts are extremely reasonable, and the interchangeability feature offers desirable future economies. The complete line includes cutouts in the 5.2, 7.8, and 15 kv classes, with a full line of cartridges in standard- and heavy-duty interrupting ratings, and a 200-ampere switch blade. All cartridges take standard 20-inch distribution fuse links.

Protection That Is Reliable

The many desirable features incorporated in L-M's "HDO" open-type cutout assure positive action, dependable service.

Completely bird-proof construction.

Current-carrying parts all silver-plated brass or copper; this prevents false outages caused by contact heating even after many years of operation.

Cartridge firmly anchored for closing-in on faults; tube cannot move upward; cannot pop out of bottom hinges in closing.

All cartridges are designed for complete removal and replacement with a standard hook-stick.

Maximum interrupting capacities with any size link. Cutout interrupts any fault current from minimum melting of link to maximum cutout rating.

Connectors mounted directly on stationary contacts eliminate several current-interchange points.

Tube cannot miss top contacts, which are heavy silver-plated springs and designed to serve as a guide.

Corrosion-resistant, high-strength hardware has four to six times the life of mild steel.

Get Complete Information

Ask the LM Field Engineer for complete information about L-M's complete line of open and enclosed fuse cutouts and other protective equipment. Or write Line Material Co., Milwaukee 1, Wis. (a McGraw Electric Company Division).

SIZES AND RATINGS

Cartridges	Interrupting Capacity, Amperes 5.2 kv.	7.8 kv	15 kv
Standard Duty Single Venting (Solid Cap)	3000 A.	3000 A.	2000 A.
Medium Duty Single Venting (Solid Cap)	5000	5000	4000
Medium Duty Double Venting (Expendable Cap)	6000	6000	4000
Heavy Duty Double Venting (Expendable Cap)	10,000	10,000	8000
Switch Blade	200 amperes continuous		

All cartridges and switch blades interchangeable in each voltage class.

LINE MATERIAL
fuse cutouts and fuse links

204

POSTWAR EXPANSION of Pacific Gas & Electric Co is studied on a map by George Fiedler, left, Niagara Mohawk Power Corp, while Walter Dreyer, PG&E vice president, fills in details

Research on Al Connectors . . .

. . . and power factor of room coolers were pertinent topics at recent meeting of EEI's Transmission and Distribution Group

Special attention to two problems of particular interest to operating men marked the meeting of the Transmission and Distribution Committee of Edison Electric Institute, Oct. 6-8, at San Francisco. The problems were power factors above the recently-approved levels for room air conditioners and continued research on aluminum connectors.

A unanimous vote by committee members to seek still higher power factors in room cooler equipment was given to Bryce Brady, Oklahoma Gas & Electric Co, sponsor of the utilization equipment group. He reported that the joint ARI-EEI-NEMA committee approved these minimum power factors: ⅓ hp—75%; ½ hp—80%; and ¾ hp—85%. They are to be effective on models after Jan. 1, 1956.

Concluding the discussion, Brady asked all companies to send him load data and checks which will improve the case for higher operating power factors that must be presented before the ARI-EEI-NEMA committee.

Prompt action on step two of the research project of Armour Research Foundation on aluminum conductor fittings was recommended by the subcommittee on aluminum conductor fittings. As reported by Chairman R. N. Coe, Southern California Edison Co, the objective of this next phase should be performance specifications for both bolted and compression connectors. These specifications should cover the factors of creep, unequal thermal expansion of connector components, and susceptibility to corrosion. Another might be current distribution in the conductor and connector.

In reporting on the first phase, Chairman Coe pointed out that 410 samples of bolted connectors from the field were studied. But little evidence was observed of connector failure due to corrosion alone.

The profound difference among compounds used on aluminum connectors, said R. W. Kunkle, A. B. Chance Co, produces a difference in connector performance. He suggested these points be used as a basis to form criteria for comparing compounds: Corrosion protection; resistivity to moisture, washing, weathering, and evaporation; adherence to surfaces over a wide operating temperature range; ease of applicability; coordination between particle size and viscosity so that metallic grits will remain suspended; and ability to increase joint conductivity rather than act as an insulating medium. E. T. Coupal, Niagara Mohawk Power Corp, added that compounds should not damage rubber goods.

Compression Fittings Require Standardization . . . Heading the task group on compression connectors, W. L. Rush, Louisiana Power & Light Co, suggested a new joint EEI-NEMA committee be formed to work out standardization of compression fittings. The goal of this standardization, remarked Clive Baugh, Pacific Gas & Electric Co, should be the complete adaptability of tools—hand and power—to the various lines of compression fittings for wire sizes up to 1/0. He explained that agreement should be reached on outside diameters and final pressures to be obtained on the contact surfaces.

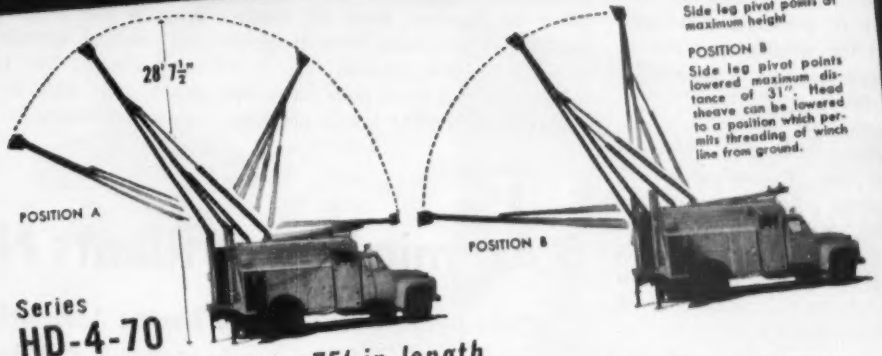
Economics of secondary voltages are strongly in favor of 240 v for residential areas, reported T. C. Duncan, Consolidated Edison Co. This is based on studies made by four companies on the cost of serving customers and the cost of residential wiring at 120 v and 240 v. However, no stand on adopting the higher secondary voltage could be made at this time.

All-aluminum conductor for transmission lines in light loading areas has given good service, reported E. M. Wright, PG&E. It is more economical because of its homogeneous makeup, high elastic limit, and low cost. Furthermore, it has no dangerous disadvantages if used with the required safety factors. This opinion is based on 2,860 circuit-miles of all-aluminum now in service, with some lines dating back to 1899. And PG&E proposes to add another 820 circuit-miles by 1960, he pointed out.

Wrinkle Causes Cable Failure . . . Representing the underground group's interest were discussions of high-voltage cable and 12-kv radial distribution. Failure of a 69-kv oil pipe-type

- POWERS *American*

"Pole-Master"
HYDRAULIC DERRICKS



POSITION A
Side leg pivot points at maximum height

POSITION B
Side leg pivot points lowered maximum distance of 31". Head sheave can be lowered to a position which permits threading of winch line from ground.

Series HD-4-70

Handles poles up to 75' in length

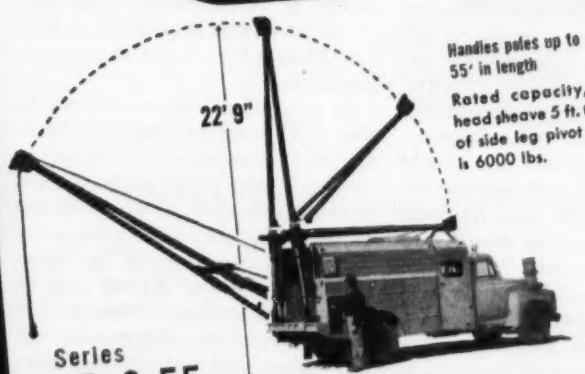
This is a heavy-duty derrick which can be operated by one man. Every movement—from carrying position to any point within the operating range—is hydraulically actuated. Shifting of control levers is the only manual requirement.

The derrick can be spotted in any position selected by the operator . . . and can be moved under load.

What's more, the position of the head sheave can be raised or lowered a distance of 31" . . . hydraulically . . . without changing angle of elevation.

With head sheave fully extended, 5 ft. to rear of side leg pivot points, the derrick has a capacity of 9000 lbs.

Complete details are given in Powers-American Bulletin No. 407. A copy, with quotation, is yours for the asking.



Handles poles up to 55' in length

Rated capacity, with head sheave 5 ft. to rear of side leg pivot points, is 6000 lbs.

Series HD-2-55

Operation is completely hydraulic. Insertion and removal of locking pins, and shifting of control is the only manual requirement.

The derrick can be spotted in an unlimited number of positions, and moved while under load. It will lift loads to body cargo area.

Descriptive Bulletin No. 405R, with quotation, will be sent on request.

SERIES HD-2-40 Same as above, with 20' 10" ground-to-head sheave height.

LIVE BOOM — CAN BE OPERATED UNDER LOAD

HYDRAULIC HEIGHT ADJUSTMENT

CAN BE USED WITH SINGLE-DRUM WINCH

NO BODY LOAD AREA OBSTRUCTION — NO DANGEROUS EXPOSED MECHANISM

POWERS-AMERICAN DIVISION

5900 NO. BROADWAY • ST. LOUIS 15, MO.
428 LATHAM SQ. BLDG. • OAKLAND 12, CALIF.

cable because of a wrinkle in the binder tape was described by H. L. Davis, Jr, Philadelphia Electric Co. Installed in August, 1947, the line consists of three 1,500 MCM, compact segmental conductors with 315 mils of paper insulation in a 6-in. pipe.

The cable is rated at 880 amp nominally, and was carrying 630 amp at the time of failure in June, 1954. Factory examination of the binder tape proved conclusively that the fault resulted from a concentration of dielectric stress caused by the wrinkle. It is probable, concluded Davis, that the wrinkle occurred as the metallized paper tapes were being applied at the factory.

Training Cuts Cost of Job . . . A comprehensive plan of previewing and training for the installation of its first 110-kv cable paid off in a very low cost for the job, reported F. B. Schullerts, PG&E. To prepare for the installation of 29.5 circuit-miles of cable, the company covered all aspects of the job through intensive training of supervisors and crews. Subjects covered in the training included purpose and importance of the cables, detailed methods of construction, and welding and testing of field joints. Also covered, said Schullerts, were pulling, splicing, and terminating of the cable, and maintenance and final inspection.

Use of a master plan, according to the paper by Carter Blankenburg, Southern California Edison Co, will pay off in the installation of a radial underground system to a growing commercial area. The plan may be started by making a broad and very general approach to the installation. Progress of the installation may be qualified by sections at a time and probability basis.

With all parts qualified in both manners, he explained, it is rather simple to distinguish among those sections which should be served initially, those which can be deferred but only at the risk of greater overall cost, and those which can be deferred with considerable assurance of overall economy.

San Francisco's Underground Distribution . . . There is a place for an underground system less expensive than the network type for areas that can tolerate an occasional outage. This general conclusion was reached by B. L. Peter, PG&E Co, as he described the 12-kv underground radial distribution system in San Francisco.

Reasons for choosing 12 kv over 4 kv are these: Need for high capacity feeders; difficulty of obtaining substation sites for the lower voltage, as well as street space for cable runs; relatively great distances from source substations; and location of the underground areas adjacent to a 12-kv area. In summary, Peter pointed out the problems of obtaining a high degree of reliability on a 12-kv radial underground system warrant further study. More development work by manufacturers on equipment for such application is justified, he said.

Upgrading of wood poles based on results of the ASTM testing program could mean a $1 million annual saving to users. This future prospect was reported by L. J. Jacobi, Detroit Edison, in describing tests to date under the program. He pointed out that tests may run another year, but the cost to EEI should be more than recovered by benefits to users.

An estimated 200 avoidable vehicle accidents have been prevented, said E. F. Hockenbeamer, PG&E, in describing the company's driver-training and testing program (EW, July 20, 1953, p 16). Safety is the basis of the program with emphasis on a personal and practical approach to train company drivers. The visual and emergency stop tests have the greatest impact on testees.

5 Atomic Power Plants Needed

Dean Dunning tells Indiana Electric Association that many are necessary in order to supply economic cost information

Topics varying as widely as atomic power plants and farm electrification were covered on the program of the Indiana Electric Association at its annual convention. The group met Oct. 6 at French Lick. The main address was made by Harold Quinton, president, Edison Electric Institute, (EW, Oct. 18, p 109).

America must build at least five atomic power plants in order to get the economic cost information required in this field, John R. Dunning, dean of Columbia University's School of Engineering, told the convention. The goal is at least one new atomic power plant started each year for the next five. Then, he said, the next series of plants could be started, and they will be economical.

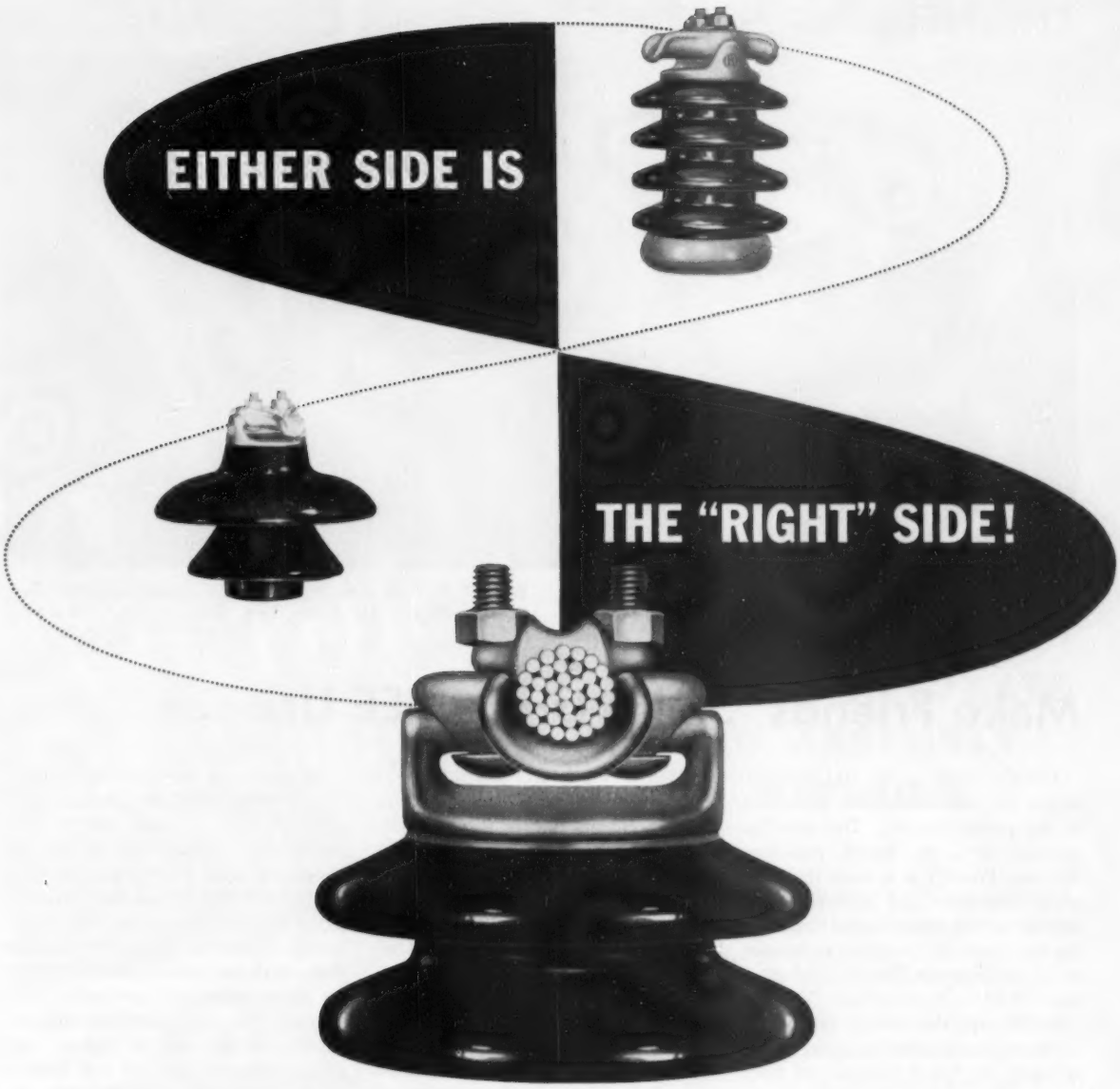
However, the most urgent need for development of atomic power is for the tapping of the atomic fuel resources. Atomic energy, he said, is the only way to make up for the deficit in fuel supply and to brake rising fuel costs.

The contribution of the electrical industry to the agricultural economy can be more effectively made in a spirit of teamwork and cooperation among co-ops, power companies, electrical manufacturers, and all interested parties, Fred H. Strong, deputy administrator of the Rural Electrification Administration, declared. Representatives of Indiana co-ops attended this session at the invitation of IEA.

While there are approximately $1,300 worth of appliances in the average home today, many new electrical devices are already being developed in the laboratories. In the near future there will be $5,000 worth, W. H. Robinson, Jr, manager of the advertising department of General Electric Co's Lamp Department, predicted.

In presenting a paper prepared by Pres A. C. Spurr, Monongahela Power Co, W. C. Handlan said that if we can develop within ourselves the impulse to create something, to build with our hands or our mental processes something of value, and provide the opportunity for others to develop such an impulse and to apply it, then we will be well on our way to developing bigger, better, and self-sufficient communities.

Qualities necessary for the development of executive ability, said Dr E. G. Williams, Indiana University, are technical competence, a broad intellectual outlook, social intelligence, and personal integrity. In order to develop executive ability, the individual must be willing to learn, have a good personal attitude, set up a goal, and have a definite plan.



design symmetry gives O-B clamptop easy workability

Since both sides of an O-B Clamptop are alike, the insulator is always placed "Right side out" on the cross-arm. The nuts (there are only two) are located on *top!* This intelligent design cuts down the time men spend on the pole top. They do not have to place the insulator in one certain way when installing it. And since both sides are the same, there's no possibility of finding a "Wrong side out" insulator to complicate hot stick work when a clamp is released and replaced during maintenance work.

The care required to install a clamptop, and the method of working with it the second time, are factors to consider, for they have a marked effect on the time spent by a lineman on the pole. Talk over the easy workability of O-B Clamptops with your O-B representative!

Ohio Brass

MANSFIELD OHIO, U.S.A.

4432-H

DUKE POWER representatives are greeted by Miles Cary, Vepco, section vice chairman. Left to right are T. J. Strickland; M. R. Kimbrell; H. B. Wolf; John W. Talley, SEE executive director; Cary; W. H. McKinnon; and R. W. Olive. Duke is newest SEE member

Make Friends, Smith Urges SEE Utilities

Utilities must accept the responsibilities for conducting their businesses in the public interest. This was the message of L. M. Smith, president, Alabama Power Co, to more than 400 utility engineers and manufacturers' representatives attending the Engineering and Operation Section Conference of the Southeastern Electric Exchange, Sept. 23-24, at Birmingham.

Smith said that utility companies must be (1) recognized as good places to work, (2) "good citizens" of their communities, (3) good outfits to do business with, (4) good safe places to invest money, and (5) known as being behind our American system of individual freedom and opportunity. He declared that creating good will is a day-to-day, hour-by-hour job for all utility workers. We cannot live apart in this dynamic world, governed solely by our technical competence, he said.

If private enterprise falters in maintaining our economic and technological leadership in the perfection of nuclear processes, the government will almost certainly expand its control of atomic energy, in the opinion of H. J. Scholz, president, Southern Services. The price of delay or half-hearted prosecution of the necessary development program may well be the nationalization of the electric industry.

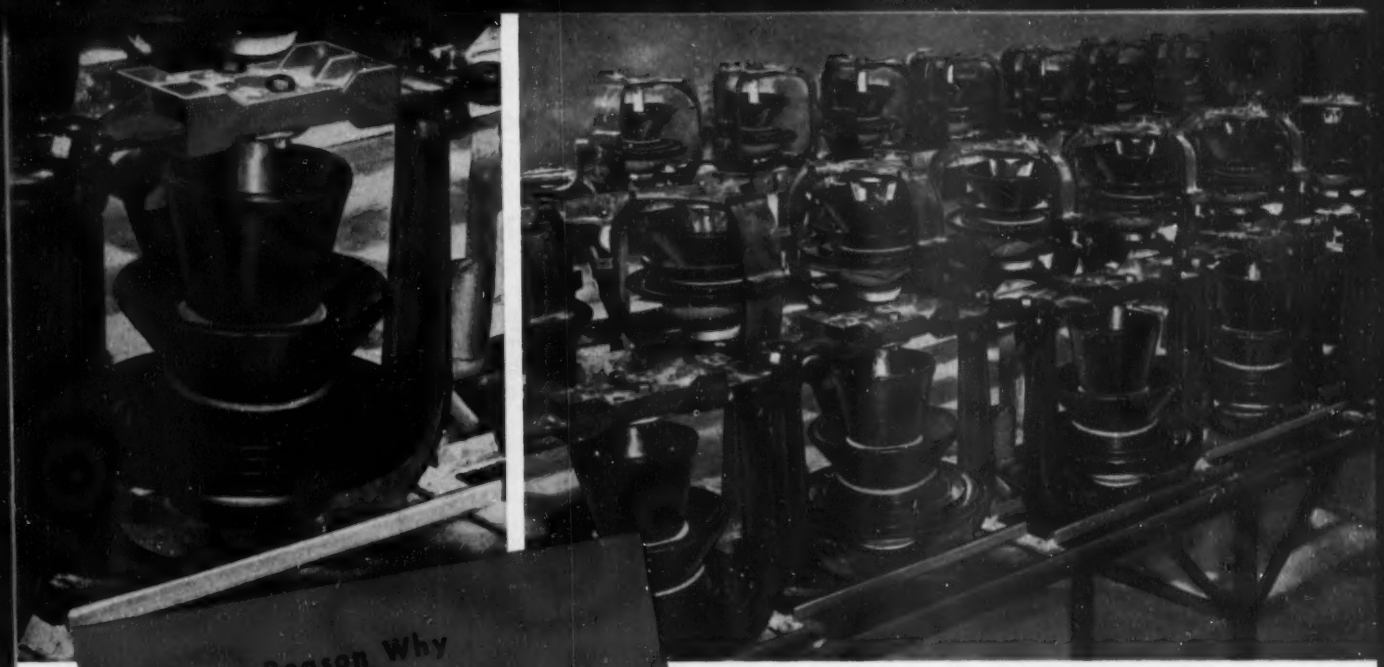
Electric shock and burn were responsible for more than 75% of the fatal accidents at 14 Southeastern power companies from 1948-1952, said H. E. Hatfield, Georgia Power Co. If utilities concentrate on the proper use of the safety devices now at hand, this alarming frequency of accidents can be reduced, he declared.

In the opinion of H. N. Muller, Westinghouse, utilities must assure themselves today of the engineering leadership they will need tomorrow or the consequences will be felt by all industry—even by the nation itself. Utilities have a real opportunity to develop training programs which have strong appeal to graduate engineers and which should be extremely effective in persuading them to join their companies.

When properly sponsored and administered, budgetary control can be management's most powerful tool to maximum accomplishments, stated C. J. Puckett, Louisiana Power & Light Co. If the fundamental advantages of a budget system are to be realized, top management must have a comprehensive understanding of budgeting and budgetary control, it must give full and sympathetic support to budgeting, and it must take a leading part in this activity.

In describing the "Distribution System of 1964," W. J. McLachlan, General Electric, predicted that a new distribution transformer would be developed after 1964 which is 20% smaller and 20% lighter than the comparable 1954 transformer. The transformer would be completely welded shut—with no gaskets and no chance for air or moisture to get in and contaminate the new, nonflammable dielectric, which will be lighter and cheaper than oil and yet will have a much higher dielectric strength, he prophesied.

According to A. J. Mary, Gulf States Utilities Co, shop assembly of distribution components (which are normally mounted on poles) have the following benefits: Substantial saving of line crew time, saving in cost, high salvage value, more efficient use of limited-service personnel, standard equipment installation, and more efficient distribution of load on poles. Mary stated that a shop-assembled 25-kva transformer installation can be installed on the job by a line crew in one hour; whereas a conventional installation requires from 3 to 6 hours. The actual shop assembly of this typical transformer bank only requires two hours of two limited servicemen, he added.



Another Reason Why

VICTOR Makes Better Insulators

Left: Victor uses seasoned cast-iron jigs for greatest accuracy.
Above: Victor Apparatus Insulators assembled in precision-aligned jigs.

WE USE ACCURATE JIG ASSEMBLY METHODS

APPARATUS INSULATORS require accurate assembly of porcelain and metal parts to achieve perfect alignment and accuracy of installation on the job.

One of many reasons why Victor apparatus insulators have such enviable service records is Victor's use of precision-built cast-iron jigs. Here, every insulator is clamped in position to assure accurate alignment. Before shipping, each unit is thoroughly tested mechanically and electrically in accordance with NEMA specifications.

Buy Victor and you're sure of correctly designed, painstakingly manufactured and thoroughly tested insulators of *Purified* Porcelain—finest insulator porcelain ever made!

VICTOR
NO. 729
STACKING UNIT
(TR NO. 140)

Specify

VICTOR PURIFIED PORCELAIN INSULATORS!

VICTOR INSULATORS, INC., VICTOR, N. Y.
SUBSIDIARY OF I-T-E CIRCUIT BREAKER CO.

Low and High Voltage Pintypes • Suspensions • Guy Strains • Spools • Switch and Bus Insulators
Custom Designed Porcelain

How to Sell Ranges to Merchant Builders

Boston Edison is doing it with amazing results by program of contact and follow-up

Electric ranges in 84.4% of all one-family homes built. That is the record rolled up by Boston Edison Co for the first six months of this year—the result of an intensive program aimed directly at home builders. Program has been in operation in the Boston Edison service area since the beginning of the post-war building boom. And in that time the percentage has risen steadily. In 1948 some 61.8% of individual homes constructed were equipped with electric ranges.

How Boston Edison has carried out this program was told by Dale E. Washburn, its vice president and commercial manager at General Electric Co's recent Utility Sales Executives conference in Louisville (p 55).

"In our territory when a house is erected, either for rent or for sale, it has been the practice of the builder to furnish and install cooking equipment," he said. "This, we believe is the place to start."

Builder's Division . . . A Builder's Division was established within the utility's commercial organization when the big building surge started. It sprang from experience gained before World War II when the company worked closely with builders in making wiring and advertising allowances wherever ranges were installed in new homes. At the forming of the division, the service area was divided into five parts. Experienced salesmen were assigned to each, working under supervision of a division chief. Sole duty of the division's personnel is to contact home builders and secure installation at time of construction of as much electrical equipment as possible.

"Our method of operation," continued Mr. Washburn, "is as follows: We obtain Dodge Building Reports and send them out to the local salesmen. By means of these reports and by checking building permits taken out in local town halls, we are able to secure names, addresses and builders of every dwelling in our territory. From the Boston office we mail two booklets, supplied by major equipment manufacturers, at ten-day intervals. With them goes a personal letter offering the services of our home specialists to lay out the wiring, lighting and kitchen. A personal call is then made on each builder by our salesmen, at which time the matter of electric service to the new house is discussed. This, naturally, brings up the subject of the electric equipment and offers the salesman a real opportunity to explain our service and sell the all-electric home. Good service on the part of the builder salesman goes a long way toward establishing favorable relations and repeat business with the builder."

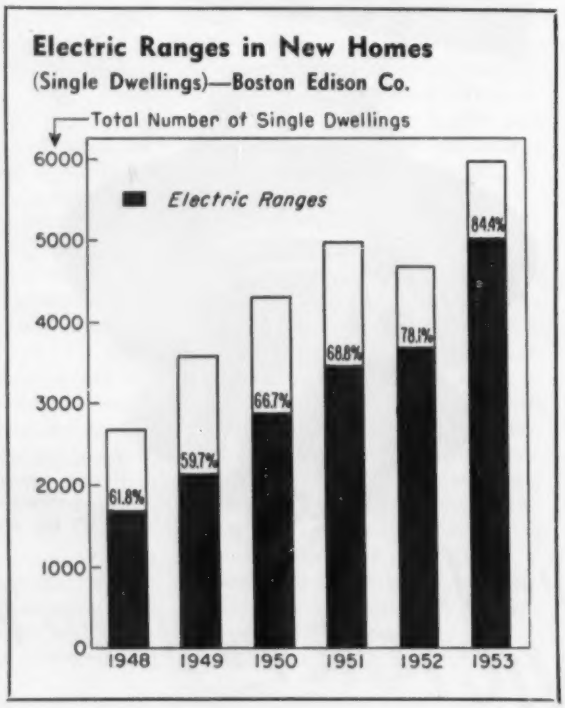
Keep At It . . . Washburn pointed out that the sales approach is a definite, persistent one. Salesmen must turn in a card each month covering each completed dwelling in his territory, builder's name, type of equipment installed, and reasons if he fails to sell an electric range.

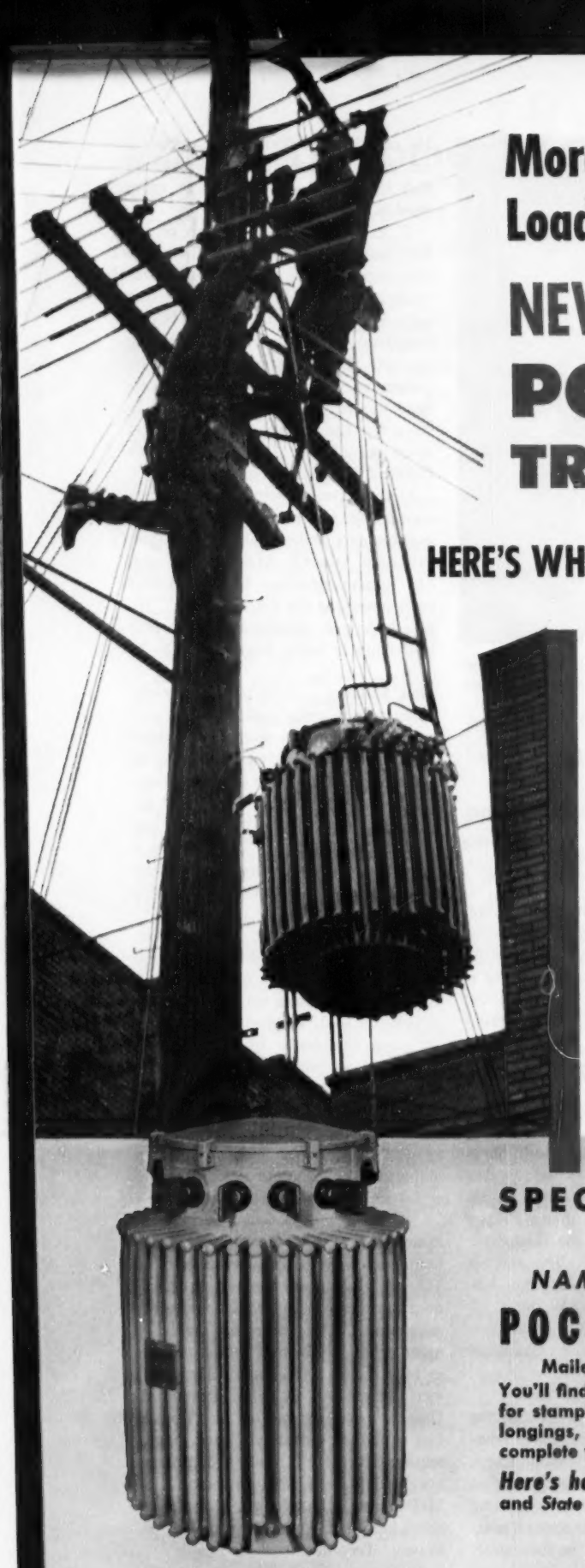
"In addition to our sales effort at the point of sale," he added, "we have made range wiring allowances that varied from time to time from free wiring installations to a $20 wiring allowance. This practice has been discontinued recently, however, because of the wide acceptance of the range."

Boston Edison furthers its builder relationships by providing promotional and advertising assistance. Its Builders' Division chief maintains membership in local builders' organizations. It also gets help itself from several equipment distributors who have assigned salesmen to the builder operation.

Check and Double Check . . . "We know our results figures are accurate," he said. "Every new home is checked for the electric equipment installed, and as a further check we have had the applications for wiring allowances. The percentage of ranges in all dwellings, apartment houses, and public housing in addition to private dwellings is somewhat less. Public housing, especially in Boston, has lowered the average; although in 1953, of all the dwellings erected in our territory in these three categories, we did obtain 71.9% installation of electric ranges."

Washburn, however, was quick to assure that Boston Edison is not neglecting other major appliances. "We believe the builders have become sold on the desirability of the electric range, and now more time and effort is being spent on such desirable items as water heaters and home laundry equipment."





More and more Utilities solve Load Growth Problems with

NEW 167 kva *Featherweight* POLE STAR TRANSFORMER

HERE'S WHY...

- ★ The *Featherweight* Pole Star weighs less than 1500 pounds.
- ★ The *Featherweight* Pole Star will replace any single phase 75 or 100 Kva pole-mounted Transformer to provide 67% to 123% more capacity.
- ★ The *Featherweight* Pole Star is lower in overall height than the average 100 Kva transformer.
- ★ The *Featherweight* Pole Star is available in standard voltages up through 13,200 volts.
- ★ The *Featherweight* Pole Star is the FIRST 167 Kva transformer made for direct pole mounting.

For complete information on this new 167 Kva Pole Star transformer, write, phone or wire your nearest Pennsylvania Sales Representative, or contact Distribution Sales Department, Pennsylvania Transformer Company, Box 330, Canonsburg, Pennsylvania.

PENNSYLVANIA TRANSFORMER COMPANY

A McGraw Electric Company Division

CANONSBURG, PENNSYLVANIA

SPECIAL POLE STAR **OFFER 50¢**

NAME AND ADDRESS

POCKET PRINTER

Mailed FREE Anywhere in U.S.A.

You'll find many uses for this distinctive Personalized Printer. It's so handy for stamping your name and address on envelopes, papers, personal belongings, etc. You pay only 50¢ for the Pole Star Pocket Printer and it comes complete with onyx black case and automatic inker.

Here's how to get it: **Indicate legibly the *Name, Address, City, Zone Number* and *State* you want on the Pocket Printer, and mail with 50¢ in coin to**

Pole Star Pocket Printer
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Possibility of error will be eliminated if street, state, etc., are spelled out.
This offer subject to withdrawal without notice and void where taxed, licensed or otherwise restricted.

IAEL CONFERENCE HOSTS included A. L. Maillard, left, president, R. G. Rincliffe, Philadelphia Electric Co president, John Morrison, Electrical Assn. of Philadelphia manager

Make Wiring Appraisable

This advice, merchandising cautions and air conditioning, electric heat topics occupy League Manager's Conference

FHA is tending more and more to consider wiring as an item with appraisable value. But the electric industry still must fully convince the "appraisal fraternity" that wiring is a true value addition if it is to succeed in getting better wiring into new home construction.

This was the statement of D. C. Slipher, technical director of Fritz B. Burns Associates, Los Angeles. Occasion was the 19th annual convention of the International Association of Electrical Leagues in Philadelphia early this month.

Problems of adequate wiring were given heavy attention by the nearly 80 electrical league managers who attended the meet.

Andrew Doremus, member of the National Adequate Wiring Bureau's Plan Committee outlined the Bureau's 1955 wiring program, and league managers from Cincinnati, Omaha and Chicago told of wiring finance programs in their areas.

George S. Jones, Jr., managing director of Air Conditioning and Refrigeration Institute, said that while air conditioning admittedly has poor load factor, the real job ahead in that field likewise lies in adequate wiring. Most problems can be solved within the industry, "but adequate wiring is a matter that must be settled by the public and therein lies the real problem." He said load factor can be improved by stressing other uses for air conditioners such as ventilation and for dehumidifying; also by adding a heating element or by employing reverse cycle room air conditioners on each side of the normal cooling season. As for power factor, ¾ hp sizes would be not less than 85% by 1956; ½ hp units not less than 80% and ⅓ hp models 75%. The new air conditioning provisions of the National Electrical Code (EW, Sept 13, p 46) also are helpful. But, he emphasized, the wiring problem continues to loom.

Electric Heating to Grow . . . In the field of residential electric space heating, L. R. Mast of Electromode Corp, Rochester, N. Y., pointed out that auxiliary and supplementary heating represents about 80% of today's market for electric heating in the home. He said that 300,000 American homes are heated electrically at present and that this number will grow to more than 900,000 by 1960.

E. C. Huerkamp, chairman of the National Lighting Bureau's Executive Committee said the industry was "missing the little guys" and getting only a fraction of the big $5 billion industrial and commercial lighting market. The electric contractor, he contended was the best man to spearhead this relighting sales job. And to fully tap the market he urged local adoption of the Lighting Bureau's Certified Lighting program.

Convention speakers also expressed concern for the industry's merchandising manners and morals. Association President Albert L. Maillard declared, "In human relations business hasn't been observing the Golden Rule." He asked league managers to furnish leadership in better business methods.

New Stability . . . A new dealer-distributor franchising policy inaugurated by Philco Corp to stop sales abuses such as transhipping was explained by John M. Otter, Philco executive vice president. "The plan has been acclaimed by both distributors and dealers," said Otter. "It's bringing a new level of stability through franchise agreements that are more than just a scrap of paper."

Still another speaker, W. G. Pierce, president of Pierce-Phelps, Philadelphia distributors, took to task misleading and false retail advertising which, he said, is causing consumers to loose confidence in the industry. He urged adoption of a code of fair advertising practices on a local level among dealers and distributors in cooperation with Better Business Bureaus. "If we do not clean up our own stable, the government is likely to do it for us in a way we may not like."

New Officers . . . Herbert E. Cook, manager of Electrical Association of Detroit was elected new IAEL president succeeding Mr. Maillard of Indianapolis, who becomes advisory member of the board. Other officers include E. J. McGinnis, Cincinnati, vice president; D. E. Rosenthal, Omaha, treasurer and G. L. Logan Los Angeles, secretary. New board members are H. H. Johns, Jr., Pittsburgh; C. C. Simpson, Chicago; J. S. McDermott, Kansas City, Mo.; James Schricker, Salt Lake City; and J. F. Mowat, Toronto.

What's To Come Before '64?

Utility sales executives told ways to expand electricity use and meet competition in years ahead at GE conference

A look at electrical living in 1964, a study of electrical marketing problems of today, and a tour of multi-million dollar Appliance Park was the bill of fare at General Electric Co's recent Utility Sales Executive Conference in Louisville, Ky.

Some 300 utility executives who attended heard GE officials, probing into the decade ahead, make these points:

- Increased use of home lighting will be of growing importance in systems where air conditioning and electric heating loads have changed system peaks—a condition that is rapidly moving north.
- The heat pump needs and must have the utility's interest and cooperation in order to be put across successfully.
- Sale of all-electric kitchens can be increased though "packaged" kitchens (several appliances all in one integrated unit) which could be installed at time home is built and financed over the life of the home mortgage.
- Free trials right in the home with small portable dishwashers can put new life into the long-slumbering, but highly potent, electric dishwasher market.
- Higher power factors in room air conditioners (85% to 90%) are needed immediately to help utilities cope with load problems and give greater customer satisfaction. (It was predicted that units would account for 2 billion kwhr more in electric energy use by 1958).
- A lower cost electric water heater with high recovery rate could speed sales of electric water heaters to point where they would account for 29% of the kwhr growth in appliance energy consumption in next ten years.
- Promotion of two-door combination refrigerators can bring new sales to the supposedly saturated refrigerator market and add another 400 kwhr per year to average residential consumption.

Speakers also pointed out that while lighting enjoys a 100% market saturation in terms of persons using it, actual applications at present time amount to only about 20% of their potential.

At Appliance Park, outside Louisville, the utility conferees toured the company's five giant new factories which will ultimately produce all of GE's major home appliances. All but one of the buildings already are rolling goods off the line.

"We are confident the tremendous investment we've made in Appliance Park will pay off," said GE Vice President C. K. Rieger, "because the American housewife wants better electrical living." He predicted that annual kwhr consumption per residential customer will double by 1964.

Amount of Light Affects Feathering of Chicks

Feathering in growing broiler chicks is in great part due to the amount of light they receive each day, reports Kansas Agricultural Experiment Station, Manhattan, after a recent study.

Birds reared from six to ten weeks of age under continuous light averaged 7.5, 11.3 and 17.1% fewer undesirable body feathers than birds reared during the same time under 5, 10, and 15 hours of daily light, respectively. Report said this finding is all the more apparent when it is considered that birds subjected to 15 hours of light daily averaged slightly more than three times as many undesirable body feathers at 10 weeks as birds reared under continuous light.

Variations in the amount of daily light up to six weeks of age had no effect on feathering in the New Hampshire-White Rock crossbred chicks used in the test. In chicks reared under continuous light, however, there was a significantly greater number of undesirable feathers at 12 weeks than at ten weeks of age.

S & S Shorts

Lamp Price to Include Excise

General Electric announces Nov. 1 its prices for lamp bulbs will incorporate the federal excise tax which heretofore has been collected as a separate item.

Rural Loadbuilding Help

The electric cooker-fryer can be the most popular piece of equipment in the rural housewife's kitchen, the October issue of "Country Gentleman" tells its readers. Three stories point out the many uses for cooker-fryer and electric roaster.

Free Europe Trip Awaits Winning Execs

General Electric Co capped its Louisville meet (above) by unveiling a contest for sales executives to spark better sales and promotional methods among utilities. It will award expense-paid trips to Europe for two to an executive of one merchandising and one non-merchandising utility which submit the coming year's "outstanding sales and market development accomplishment on major appliances within the territory served." Every privately owned utility and municipal is eligible to compete.

The two winners will be announced in the fall of 1955 at the GE Major Appliance Division's next Executive Conference. Evaluation of entries will be based on the following:

1. Utility company advertising and promotions on major appliances.
2. Cooperative dealer program. (Sales training, incentive plans, display contest, cooking schools, co-op advertising, etc.)
3. All-electric kitchen and laundry promotion. (Architect and builder development, model home exhibits, fairs, home shows, etc.)
4. Educational program with home economics classes in high schools and colleges. (Training, contests, appliance loan arrangements, etc.)
5. Percentage increase in total sales of major appliances in the territory served by individual utilities between Oct. 1, 1954 and June 30, 1955. (NEMA and AHLA market statistics.)

ANNOUNCING THE NEW G-E
INDUSTRY-STANDARD

General Electric now offers you the inventory-reducing advantages of ASA-standard bushings

Oil circuit breakers, power transformers, voltage regulators, and oil-filled reactors from 23 to 69 kv ordered from General Electric after October 1, 1954 will be equipped with G-E bushings designed in accordance with the new ASA Standards*. From then on, you'll be able to trim your costs by cutting bushing inventories and simplifying ordering and stocking.

ALL PREVIOUS ADVANTAGES RETAINED. Industry-standard bushings made by G.E. retain all the many recognized advantages of G-E bushings such as:

Center clamping to minimize the possibility of porcelain breakage.

Complete sealing to cut maintenance.

Porcelain replacement in the field without removing bushings.

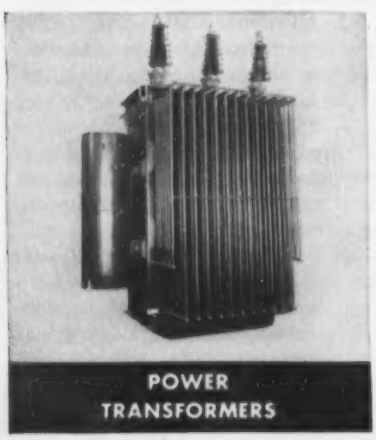
START YOUR STANDARDIZATION PROGRAM RIGHT AWAY by specifying G-E power apparatus—you'll get the new industry-standard bushing. For more information, contact your nearest G-E Apparatus Sales Office or write to General Electric Company, Section 422-21, Schenectady 5, New York.

* The applicable electrical and mechanical standards are C57.12a 1954, C57.12b 1954 and C37.4a 1954.

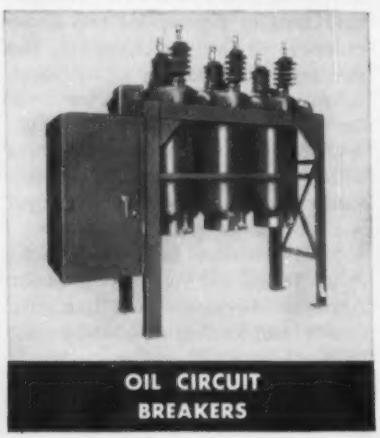
Progress Is Our Most Important Product

GENERAL ELECTRIC

HERE'S WHERE NEW G-E INDUSTRY-STANDARD BUSHINGS WILL BE USED



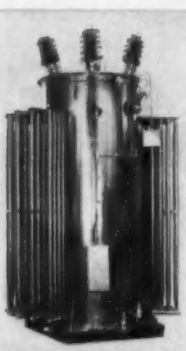
POWER TRANSFORMERS



OIL CIRCUIT BREAKERS

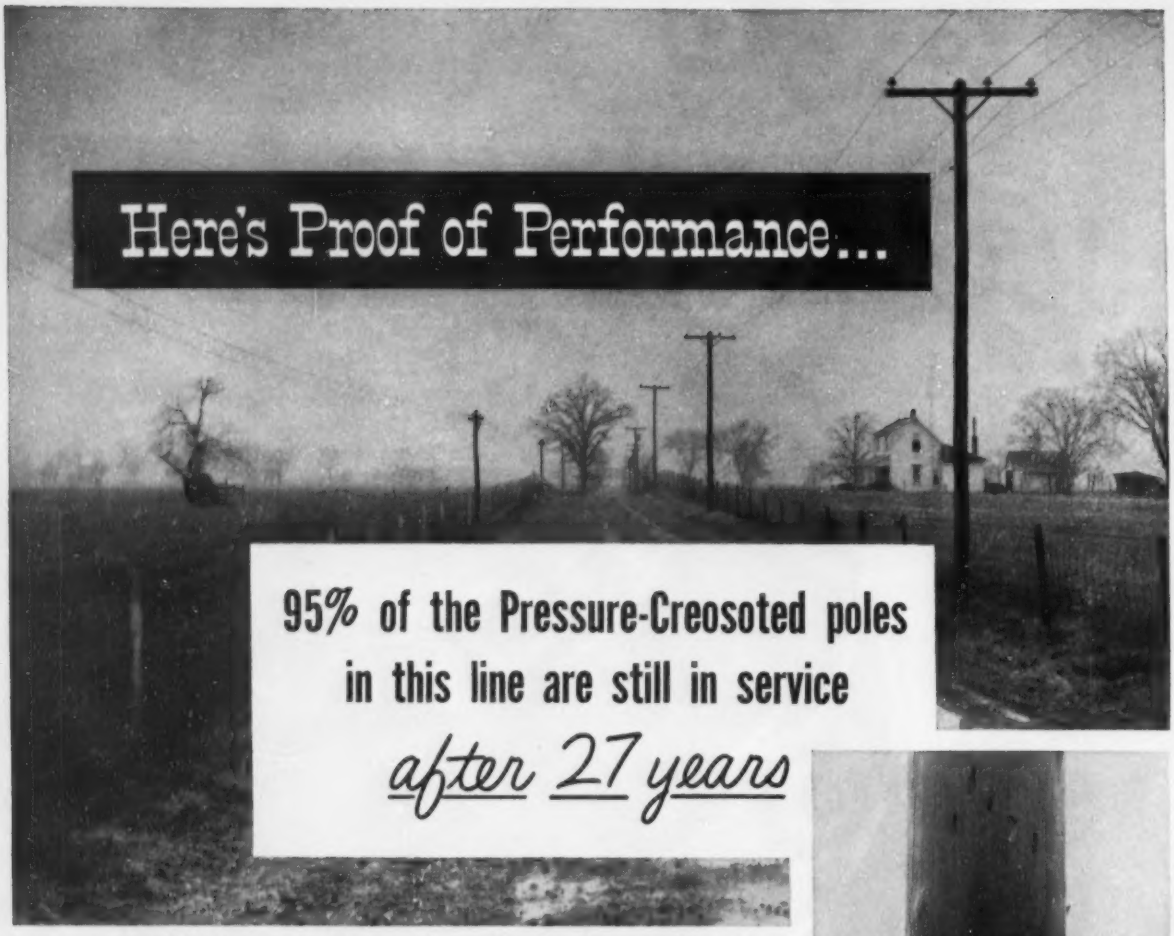
REGULATORS

BUSHING

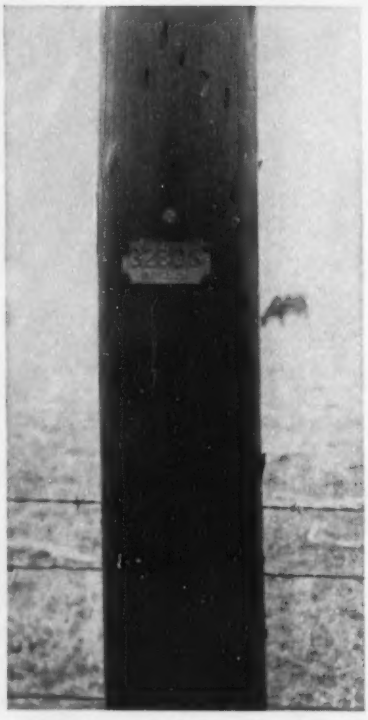


OIL-FILLED
REACTORS

The new G-E industry-standard bushing meets requirements of ASA Standards and retains all the advantages of previous General Electric bushings.



THE POLES on the right are part of a 27-year-old group in a line of Dayton Power & Light Company between Washington Court House and Leesburg, Ohio. Ninety-five per cent of the 1927 poles are "still in fine shape, almost as good as when installed."



CLOSE-UP on one of the poles showing the 1927 dating nail.

• These pressure-creosoted poles, located between Washington Court House and Leesburg, Ohio, were installed by the Dayton Power & Light Company in 1927. Today—27 years later—more than 95% are still in service.

Actually, officials of the utility company can recall only one replacement in the line due to rot at the ground line. The other replacements were the result of line improvements.

Records like these, established on the lines of many of the nation's leading power and telephone companies, are your assurance that pressure-treatment with Creosote is the way to get maximum pole life.

* * *

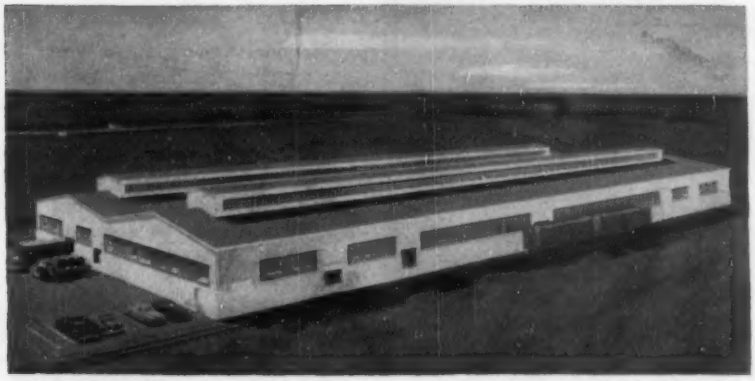
You get uniformly good results from Creosote treatment when USS Creosote is used. That's because USS Creosote is a uniform product, the result of continuous processing in the plants of United States Steel. For complete information on USS Creosote, contact our nearest Coal Chemical sales office or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS CREOSOTE

USS

4-494

UNITED STATES STEEL



NEW ANACONDA ALUMINUM MILL (architect's view) is designed for automatic rolling of aluminum rod. Besides rod, the 460 x 200 ft plant will produce all sizes of ACSR

Anaconda Gets Al-Rod Mill

A million-dollar aluminum rod rolling mill is in transportation to Anaconda Wire & Cable Co's new aluminum plant in Great Falls, Montana. This mill is designed for automatic rolling of aluminum rod. The rolling mill will be erected in the new plant now under construction, and scheduled for operation early in 1955.

In addition to the rod rolling mill, wire drawing and stranding equipment valued at another million dollars will be used for production of bare aluminum and strand.

The new aluminum mill building is 460 ft long by 200 ft wide. It is served by rail on the north and south sides. Truck ports for undercover receiving and shipping are along the east and west sides.

The building is the quick-erection type. Concrete tilt-up walls in 7 ft high by 20 ft long sections were raised in place above the ground level (footings). Above that height, up to the roof itself, metal Q-panels were erected, with sash conveniently placed where most light is needed. The sash runs 8 ft high, the Q-panels between 8 and 14 ft. The Q-panels are fully insulated.

Concrete tilt-ups were poured under cover all last winter, each requiring about 8 days to form and harden. The tilt-ups were stored until the break of weather, then loaded and unloaded from the railroad sides, about four tilt-ups to the flat car. Tilt-ups for the east and west ends of the building were handled by tractor.

The new aluminum facility at Great Falls will be both full-fabricating and semi-fabricating. It is the only such unit within the Anaconda Wire & Cable Co "family." Bars will be delivered from the Anaconda Aluminum Co's reduction plant at Columbia Falls, 300 rail miles away. Bar storage in Great Falls will be handled by electric trucks. From that point, an overhead crane will deliver the bars to the furnace. From there, the hot bars will be fed into the new million-dollar rolling mill and emerge as 3/8 in. rod. The finished rod will be available to other Anaconda mills.

Together with a separate building alongside for copper fabricating, Anaconda Wire & Cable Co will have 195,000 sq ft of manufacturing area, at this one location, committed to fabrication of its products in the red metal or the white metal. The company has other aluminum wire and cable mills strategically placed around the country.

Harvey Aluminum Co Studies Alaskan Damsite

Harvey Aluminum Co of Torrance, Calif., is having Ivan Bloch, industrial consultant of Portland, Ore., arrange for a study of the Wood Canyon power site on Copper River in Alaska. A temporary permit has been granted by the Federal Power Commission.

A 560-ft dam 85 miles upriver from Cordova would develop 1,475,000 hp, according to preliminary estimates. Bloch is making arrangements for stream gauging, silt investigations, and core drilling of the proposed damsite.

Square D Acquires Iowa National Mfg. Co.

Square D Company, Detroit, has acquired the property and facilities of the Iowa National Manufacturing Co of Cedar Rapids as a wholly owned subsidiary. Square D will take over a 26-acre site and complete a 112,000-sq-ft manufacturing plant presently under construction by Iowa National. The new facilities will supplement Square D's seven U. S. plants and those in Mexico City and Toronto.

Square D will go ahead with announced plans for a new plant at Seacaucus, N. J., part of a program to invest $2.5 million for capital expansion in the current fiscal year. The Seacaucus facility supplants a proposed new headquarters plant at Royal Oak, Mich. (EW-Aug. 2, '54, page 59), plans for which were abandoned late this summer because of labor trouble.

C. Howard Brittenham, formerly plant manager of Square D's plant in Peru, Ind., has been appointed plant manager of the Iowa National facilities.

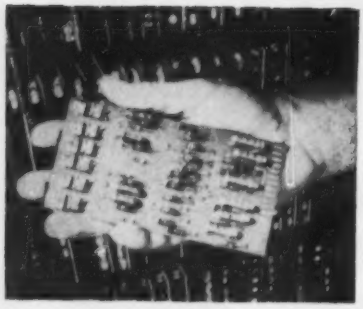
Inert-Gas Welding Used for Mild Steel

A metal inert-gas arc welding process for broad-scale welding of mild steel on a production basis has been developed by Westinghouse Electric Corp. Field tests have shown 15 to 20% faster welding speed at a 25 to 50% reduction in costs over other manual and semi-automatic inert gas methods. The welds are clean—virtually no spatter and no slag.

These results have been obtained by a new MS-20 coated wire, a new welding gun, wire control unit, and a constant-potential, 500-amp, dc arc welder using a selenium rectifier.

Mild steels of thicknesses 1/16 in. and up can be joined by this process in either semi-automatic or automatic operations. The steel can be welded in a horizontal or flat position. Vertical or overhead welding have not been developed.

The consumable-electrode process has hitherto not been successful for mild steel but it has been used for years to weld stainless steels, aluminum, and other non-ferrous metals.



IBM's EXPERIMENTAL COMPUTER contains 595 printed circuit wiring panels, simplifying production and maintenance. Each panel (right) mounts transistors, diodes, and resistors.

All-Transistor Calculator Shown by IBM

An experimental all-transistor calculator about half the size and requiring only 5% as much power as a comparable vacuum-tube unit has been designed by International Business Machines Corp. The calculator was exhibited at a press preview at the company's new Poughkeepsie, N. Y., research laboratory.

The calculator contains more than 2,000 transistors, eliminating the need for a bulky power supply and forced air cooling of components. Power consumption is 310 w from a 110-v convenience outlet. The transistors have a much longer life than vacuum tubes. They are mounted on 595 wiring panels which simplify production and maintenance and reduce space requirements. The machine can be built in approximately 6 months.

This experimental unit is comparable in capacity to IBM's Type 604 electronic calculator, of which over 2,000 are reported in use. The 604 has 1,250 vacuum tubes.

Four of the other phases of IBM's electronic research program, as shown to the press, deal with magnetic core storage devices, a gas tube counter, barium-titanate matrix crystal storage devices, and cathode ray memory storage tube.

Magnetic core storage devices are used in IBM's Type 705 machine. The cores are approximately 3/32-in. diam doughnuts that can remember bits of information indefinitely and recall it in a few millionths of a second.

The new research laboratory is a U-shaped three-story structure, and adds 179,000 sq ft to existing laboratory floor area. Estimated cost is between $6 million and $7 million. The two wings contain 155 laboratories and offices for nearly 600 engineers and research personnel. The connecting wing houses an auditorium, reference library, lounge, cafeteria, kitchen, and receiving department.

Interior of the building is a "module" design of 7-ft units of space, each with one window, artificial lighting, air conditioning, and laboratory services as required. Movable steel wall panels can be dismantled and reset at any desired interval. Other buildings are contemplated.

MANUFACTURING BRIEFS

National Association of Power Engineers has established an annual $1,000 scholarship at Illinois Institute of Technology, Chicago. It is intended to encourage higher education in mechanical, chemical, and electrical engineering among sons and daughters of active or deceased members of the association.

Industrial Heating Equipment Association, Inc is the new name of the former Industrial Furnace Manufacturers Association of 412 5th St, NW, Washington 1, D. C. The new name reflects the broadening of its membership to include induction and dielectric heating equipment, ovens, and combustion equipment.

Okonite Co, Passaic, N. J., is putting into effect a new distributor policy for its splicing tapes. By the provisions, all tapes will be sold exclusively through selected dealers, thus eliminating direct sales. This new policy is reported to be new to the entire tape industry.

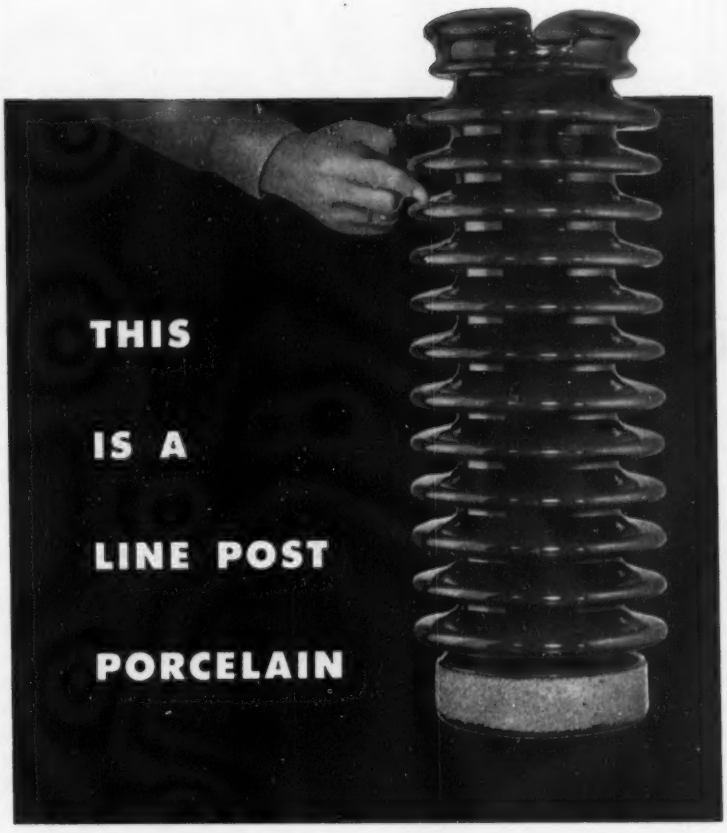
L-M Operates New Plant Facilities

New manufacturing and market facilities at Line Material Co's Kyle Products plant, South Milwaukee, is now in operation. Seven new lines for assembling and testing Type H, 3H, E, L, and R oil circuit reclosers, GS sectionalizers, and NR switches, constitute the manufacturing portion of the addition. Marketing facilities for warehousing and shipping occupy about one-third of the new area.

These new facilities are located in a 40,000 sq ft addition. This addition and a new building at Central Plant represents $500,000 of an $800,000 appropriation. The balance has been allocated for improvements in L-M plants at Zanesville, Ohio, and East Stroudsburg, Pa.

It's now more than 20 years since Lapp engineers decided that a Post design would provide notably better high-voltage performance than the conventional spreading-shell type of unit—*if* it could be built.

Lapp has a long record—both before the introduction of the Line Post and since—of meeting that particular *"IF"* challenge. And, too, of carrying through. Because, even after turning out a few satisfactory samples, it's obviously quite a different thing to produce such pieces in successful long production runs.



Why should this porcelain be difficult? Why is it that ceramic engineers marvel at the sight of thousands of these pieces moving through routine production in the Lapp plant?

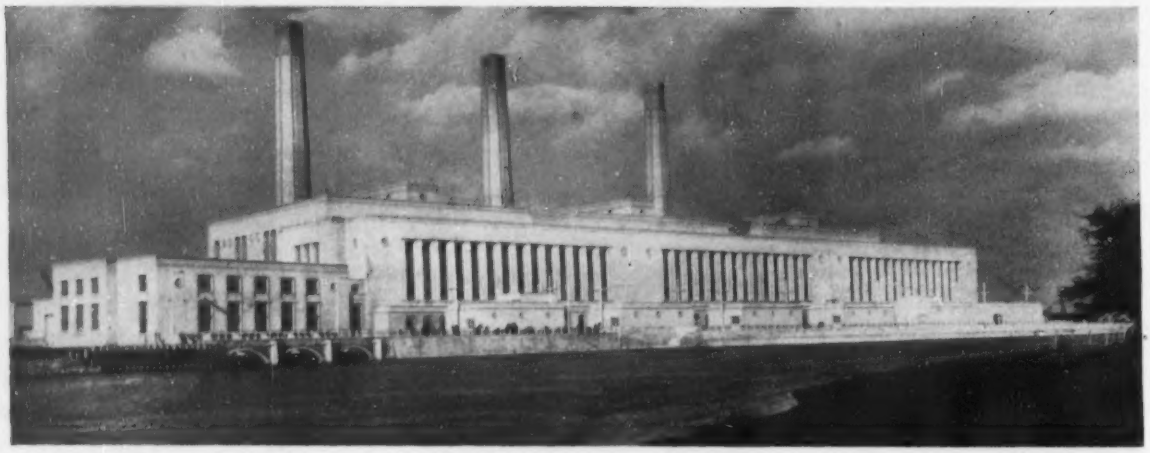
Well, first, it's a big piece of porcelain. Weighing 52 pounds, it's more than twice as heavy as any other piece of porcelain in the conventional line of pin-type, pin switch, or suspension insulators. And difficulty of ceramic production always increases disproportionately to weight, size, and thickness of section.

More than that, the Lapp idea of extra operating security demands quality and reliability of a high order. For instance, every Line Post porcelain is inverted on a grounded table and subjected to a vigorous 60-cycle flashover test with voltage carried on a chain dropped to the bottom of the open hole. The Post head that survives this test is sound indeed.

So many Lapp Line Posts have served so many years with such an outstanding low-replacement record that it seems like an old story now. But we still like to remind purchasers of electrical equipment—and insulators—that such porcelain provides an extra margin of operating security . . . of low upkeep and maintenance . . . to any system on which the porcelain is marked LAPP.

Lapp Insulator Co., Inc., Le Roy, N. Y.

Lapp



Generating plants like these help to take . . .

British Electricity Authority Out of 'Red'

For the first time since the nationalization of electricity in Great Britain on April 1, 1948, white-haired Chairman Lord Citrine had an unwrinkled brow at the presentation of the British Electricity Authority's annual report this year.

At last increased generating capacity has enabled the BEA to face the coldest British-style winter without fear of power cuts, a prominent feature on the British electricity map every winter since the war.

Installation of 1,419,000 kw . . . BEA installed 1,419,000 kw of generating capacity in 1953-54. This is nearly twice as much as the highest total for any pre-war year. It has under construction 35 large thermal generating plants in addition to 44 new plants already put into partial operation. Consumers have crept up by 500,000 to more than 14,380,000 and total sales of electricity have increased 7% over the previous year.

BEA now has a combined generating capacity of 18.6 million kw. In the next six years this should reach some 25.5 million kw. Included in these programs are plans to move away from the "standard" 30,000-to-60,000-kw generating units and move into the higher output ranges.

Plans include the following plant units: Four 100,000 kw, five 120,000 kw, and the first British 200,000 kw, all to be ready by 1959. The 200,000 kw unit is to have a steam pressure of 2,350 psi at 1050 deg.

BEA generating stations in the 1953-54 period produced 66 billion kwhr, 17% of which was produced in plants over 25 years of age.

Plans are for BEA to spend $374 million over the next ten years hooking up to farms alone. Of this sum about $280 million will be required for reinforcing the board's distribution networks and the remainder for generating capacity.

British power engineers are rightly proud that whereas in 1937-38 the average price obtained for domestic units was 1.522 pence, now it has only increased to 1.532 pence. Prices for large scale power for industry have risen in the same period from 0.646 pence to 1.143 pence. In a period during which the British cost-of-living has more than doubled, the average price for all customers has increased from 1.055 pence in 1937-38 to 1.373 pence now.

Fuel Prices Equalized . . . The British without regard for financial costs, do nearly anything with electricity—even to heating houses with resistance coil "fires." Government policy which equalizes all "fuel" prices—gas, coal, electricity—is probably responsible. The country, however, has few natural resources in this field. Coal, all that's produced, could be exported if it were not needed at home; this is priced as an import. There's hardly any capacity available in the way of hydroelectric resources. And to date there are no natural gas or petroleum resources to speak of.

Drilling For Petroleum . . . In this last connection, however, there have been explorations going on recently with deep drilling in central and southern England which shows the possible existence of gas and/or petroleum in commercial quantities. If it's proved, these new natural resources will take sometime to be developed and integrated.

Lord Citrine at the press conference was asked about atomic energy. He said that within ten years experience would have been gained with the two nuclear power stations now in the course of construction, and "standard" stations of considerable capacity would then be designed and constructed. In 15 years' time nuclear power would be saving 20 million tons of coal a year, he declared.

Peak demand last year on the BEA system was 16,309,000 kw as compared with 14,850,000 kw in the previous year. With allowance for the hardest possible winter conditions it was claimed that plant capacity would be about 8% short of demand this year, but that this could be made easily

by voltage reduction for brief peak periods.

After struggling to meet industry's increasing demands, BEA now seems to be "out of the red" as far as plant capacity is concerned. Coal problems still remain. Only six-weeks' stock is held at the power plants, and labor disturbances in the mining industry could distort the rosy picture of Britain's electrical future which the annual report presented.

FINANCIAL BRIEFS

Commonwealth Edison Co and Central Illinois Light Co are discussing possible exchange of properties.

Phoenix, Ariz., citizens vote 3,877 to 274 to give the Arizona Public Service Co a new 25-year franchise . . . Lancaster, Tex., City Council has granted the Texas Power & Light Co a 50-year franchise. The earlier franchise granted in 1912 would have expired in eight years.

Consolidated Edison Co of New York has arranged with 15 local banks for a $75 million credit to run until Oct. 10, 1955.

Black Hills Power & Light Co has received Federal Power Commission approval to purchase the electric facilities of Homestake Mining Co, Lead, S. D., and Wyodak Coal Co, Gillette, Wyo., for $916,000.

Nashville, Tenn., Power Board has purchased the city's light plant for $215,000 . . . **Lea County Electric Cooperative,** Lovington, N. M., has received a Rural Electrification Administration loan of $1,155,000 to build two 4,000-kw diesel generating units, construction of 269 miles of distribution lines to serve 821 new rural customers, and system improvements.

Portland General Electric Co has arranged to sell $12 million 3⅜% first mortgage bonds to institutions.

Georgia Power Co holders of 411,655 shares of 433,869 shares $6 preferred stock outstanding have agreed to exchange their shares for the new $4.60 on a share-for-share basis. Remaining 22,214 shares will be called for redemption on Nov. 6.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
Oct. 14	**2.88**	**2.90**	**3.09**	**3.87**	**4.00**	**4.36**	**4.55**	**4.92**	**5.23**
Oct. 7	2.88	2.90	3.09	3.88	3.99	4.36	4.49	4.78	5.17
END OF QTR.									
3rd 1954	2.88	2.90	3.10	3.89	3.99	4.38	4.50	4.80	5.19
2nd 1954	2.90	2.96	3.19	4.03	4.14	4.48	4.72	5.04	5.45
1st 1954	2.82	2.87	3.14	3.88	4.00	4.42	4.83	5.19	5.42
4th 1953	3.07	3.12	3.34	4.17	4.32	4.62	5.07	5.37	5.51

Data: Reis & Chandler, Inc.

EARNINGS

Company	Period Months Ended		Net Income 1954	Net Income 1953	Earnings Per Common Share 1954	Earnings Per Common Share 1953
El Paso Electric	12	Aug.	$2,013,011	$1,644,844	$2.28(a)	$2.06(a)
Texas Power & Light	12	Aug.	9,872,443	8,822,948	.....	.....

Notes—(a) Based on 840,387 shares in 1954 and 763,988 shares in 1953.

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF OCTOBER 14-20			
Bonds			
Wisconsin Public Service—1st mtg 3¼% due 1984	$12,500	102.9159%	3.10%
Texas Power & Light—1st mtg 3⅛% due 1984	20,000	102.461	3.00
Louisiana Power & Light—1st mtg 3⅛% due 1984	18,000	100.877	3.08
SCHEDULE FOR OCTOBER—NOVEMBER—DECEMBER			
Bonds and Debentures			**Bid Date**
Colorado Springs, Colo—water, electric and power revenues due 1957-82	$10,000	.....	Oct. 21
Florida Power Corp—1st mtg due 1984	12,000	.....	Oct. 26
Wisconsin-Michigan Power—1st mtg due 1984	3,000	.....	Oct. 26
Florida Power & Light—1st mtg due 1984	10,000	.....	Oct. 27
Sierra Pacific Power—1st mtg due 1984	4,000	.....	Nov. 9
New Orleans Public Service—1st mtg due 1984	6,000	.....	Dec. 14
Kansas Power & Light—1st mtg due 1984	8,000	.....	.....
Preferred Stock			
Interstate Power—200,000 sh $50 par	$10,000	.....	Nov. 30
Mississippi Power & Light—44,476 sh $100 par (to be offered in exchange for outstanding $6 pfd on a sh-for-sh basis, plus a cash difference between initial public offering price of new shares and redemption of the old shares)	.....	.....	.....
Common Stock			
Hawaiian Electric—50,000 sh (to be offered commonholders on a 1-for-13 basis without underwriting)	.....	.....	.....
Virginia Electric & Power—600,000 sh (to be offered commonholders on 1-for-10 basis with an oversubscription privilege)	.....	.....	.....
Upper Peninsula Power—30,625 sh (to be offered commonholders on a 1-for-8 basis, record Oct. 26 to expire Nov. 10)	.....	.....	.....
ISSUES RECENTLY POSTPONED			
Bonds			
Gulf States Utilities—1st mtg due 1984	$24,000	.....	.....
Consolidated Edison Co of N. Y.—1st mtg due 1984	50,000	.....	.....
Preferred Stock			
Gulf States Utilities—160,000 sh $100 par cum	$16,000	.....	.....
UNSCHEDULED AND/OR UNDER CONSIDERATION			
Bonds			
Long Island Lighting—1st mtg	$20,000	.....	.....
Connecticut Light & Power—1st mtg	10,000	.....	.....
Kentucky Utilities—1st mtg	15,000	.....	.....
Kansas City Power & Light—1st mtg	16,000	.....	.....
Preferred Stock			
Black Hills Power & Light—10,000 sh $100 par	1,000	.....	.....
Common Stock			
Kentucky Utilities—about 228,678 sh (to be offered commonholders on about 1-for-10 basis)	.....	.....	.....

Central Illinois E&G Will Up Rates

The Illinois Commerce Commission has granted Central Illinois Electric & Gas Co an increase in electric rates amounting to $851,000, or 88.3% of the amount requested. It should be noted that instead of a requested increase of $203,000 for the company's gas service the commission reduced rates by approximately $48,000 from the current levels.

The commission received testimony with respect to the original cost of the company's property and the depreciation reserve. The net original cost of the property as of Aug. 31, 1953, was $31,141,342.

Substantial amount of testimony was received in evidence with respect to reproduction cost new and observed condition of petitioner's property. Detailed evidence was presented on the history, development, and application of the Handy-Whitman index for trending original cost of various items of utility property.

Observed Depreciation

With respect to observed depreciation, L. N. Boisen, witness for the company, stated that ". . . during 1953 he had made an inspection of the properties, and he determined that the observed depreciation of the electric utility plant was 16.5% . . ."

A summary of the evidence of reproduction cost new and observed depreciation, as of August 31st, but exclusive of construction work in progress by department indicates the following:

	Electric	Gas	Water
Reproduction cost	$58,390,190	$21,223,091	$1,816,390
Observed depreciation	9,566,394	6,140,752	538,692
Net reproduction cost....	$48,823,796	$15,082,339	$1,277,698

It should be noted that the above valuation of net reproduction cost is 56.7% higher than net original cost.

The ICC stated that "the company claimed allowances for materials and supplies and cash working capital in the amounts of $1,759,330 for the electric department . . . In support of such claims, the company introduced evidence developed along customary lines of 45-days' operating expenses, exclusive of the cost of purchased electricity and gas, plus the average monthly materials and supplies inventory, including fuel."

Construction Work in Progress

The order continued, "The evidence in the record is that the company has expended on construction work in progress $2,098,156 for additions to the electric utility plant, $457,647 for additions to the gas utility plant, and $10,192 for the additions to the water utility plant. The construction work in progress for the electric utility plant includes expenditures by the company in the amount of $694,270 for additional generating capacity in the Rockford Division, which will not be placed in service until 1955, and for which interest during construction has been charged. The commission in this proceeding will not allow the inclusion of this latter item in the rate base. Interest during construction has not been charged on other items of construction work in progress in the electric utility or on any items in the gas and water utilities."

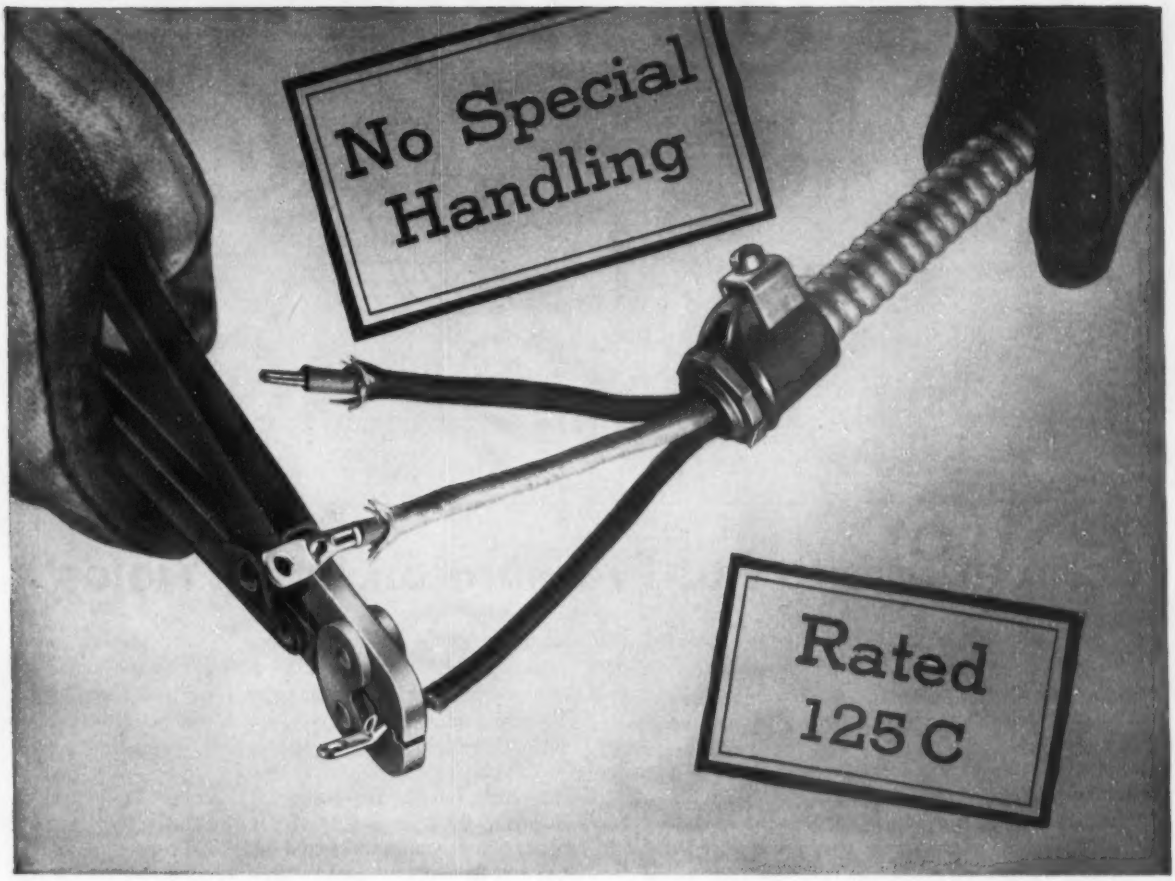
The ICC noted that while the testimony on original cost, depreciation reserve, construction work in progress was not seriously open to question, the trended original cost may be open to challenge in some minor respects. However, the ICC noted significantly that ". . . such evidence does reflect a decrease in the purchasing power of the dollar and the change in economic conditions and is pertinent to a determination of reproduction cost. Such trended cost must be considered and given appropriate weight in arriving at the fair value of the company's utility plants."

The ICC set the fair value of the company's electric property at $37,845,000, this amount to include $1,404,000 of construction work in progress (on which interest has not been charged) and cash working capital and materials and supplies in the amount of $1,759,000 for electric operations. The fair value rate base which the ICC found was 11% greater than the equivalent net original cost rate base including construction work in progress and materials and supplies.

Rate of Return

With respect to the rate of return, the ICC stated that ". . . the company's witnesses who testified with respect to the rate of return required to enable the company to maintain its financial integrity and sell its securities in competition with securities of other utilities and industrial companies with comparable risks, concluded that the rate of return should be not less than 6.75%. The commission does not agree with the conclusion of these witnesses. Having considered all the facts in this case including current economic conditions and the earnings on investments having similar risks and other elements bearing upon a fair and reasonable rate of return, the commission is of the opinion that the fair rate of return for the company's electric utility is 5.8%, and for the company's gas utility is 5.95%."

As for the additional revenues which the company requested, the order stated "the change in gross revenues for the test year resulting from the application of the modified rates as compared with existing rates is estimated to be an increase of approximately $851,000 in the case of the electric department; a decrease of approximately $48,000 in the case of the gas department; and an increase of approximately $30,000 in the case of the water department. Such modifications represent a reduction of approximately $367,000 from aggregate increase of $1,201,000 that would have resulted from the rates proposed by the company."



NEW G-E CONTROL CABLE WITH SILICONE-RUBBER INSULATION

This new General Electric silicone-rubber-insulated control cable (Type SI-58134) protects vital control circuits against fire. It will maintain circuit integrity under conditions where other control cables often fail. Its 125 C rating adds years to the life of high-temperature installations. Its armor provides added mechanical protection at low cost.

General Electric control cable with silicone-rubber insulation can be handled just like any ordinary rubber-insulated control cable. No special tools or fittings are needed...no special terminations are required. Use it in wet or dry locations.

For more information call your G-E Wire and Cable specialist, or write to Section W126-1027, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

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GENERAL ELECTRIC

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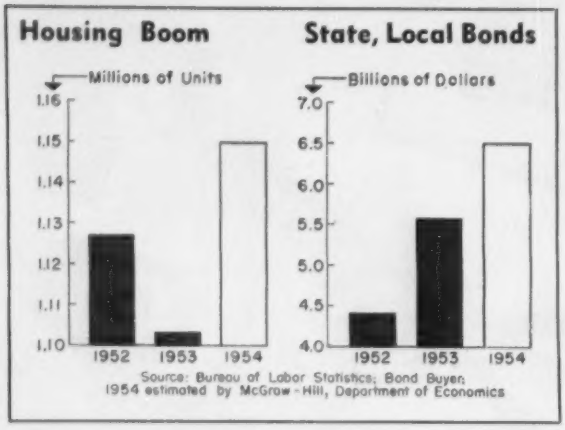

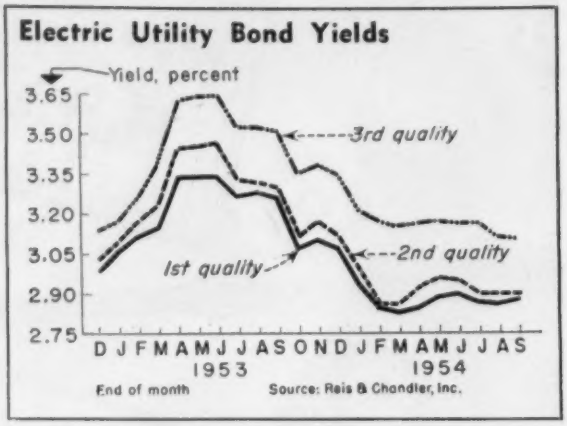

Competition to Put Pressure on Bond Yields

Utility bond yields are still stable—changing only slightly from month to month. Yields today are only slightly different from what they were last June—which is just about what was expected (EBO, June 21).

Bond yields are expected to stay roughly stable for the next few months, too. The "easy money" policy of the federal monetary authorities will prevent any sharp rise in yields—and, at the same time, investor resistance to lower yields will prevent much of a fall.

Nevertheless, "stability" over the coming months may mean something quite different from what it meant earlier in the year. There will be heavier demand for long-term financing in some other lines of business. This competing demand is bound to affect the market for utility bonds, and it will mean a greater pressure for lower prices —higher yields—than there has been for some time.

Housing Boom Growing Stronger . . . The housing boom has apparently gained new life from easy mortgage provisions featured in the new federal housing act. Monthly non-farm housing starts were already running ahead of 1953 before the act was passed, now are even stronger.
It's still much too early to pin down the actual level of housing in 1955. But it's perfectly clear that demand for mortgage money will be the highest in a long time this winter and next spring.

All this means that home mortgages are going to be stronger competition for other users of long-term money—including electric utilities. And as mortgages still yield a higher rate than the average new utility issues, this means some added pressure for a rise in utility bond yields.

The mortgage market will be a strong competitor for long-term funds for several years, if the more optimistic analysts of the housing industry are correct. They see the new FHA mortgages as a promise of a stronger housing boom for years to come.

State and local bond issues are another growing competitor for long-term funds. America's state and municipal governments are just getting going on their tremendous needs for schools, roads, highways, sewer and water facilities. Construction of these works is rising every year.

The chart (above) shows what this implies for long-term financing by state and local governments. Their money needs will continue to expand as their construction activities grow. And this—like the housing boom—means tougher competition for long-term funds and greater pressure for higher yields on competing securities, including utility bond issues.

Even Highways May Be Competitors . . . In the long run, there may be a new source of competition for long-term money. This is the President's proposed highway program —the plan to increase highway construction by $50 billion over the next ten years.

No financing plan for this proposed program has yet been officially announced. But the talk is that it might involve a federal corporation, set up to issue long-term bonds. And, if there should be $50 billion of added demand for long-term bonds in the next ten years, the utilities could hardly expect to get by without raising the ante on their own issues.

The highway program, however, is still well in the future and still somewhat speculative. The rise in housing and state and local financing is already with us, raising the competition for long-term money.

The chances are that, even with these rising demands, utility bond yields won't actually rise much, if at all, in the very near future. That's because federal monetary policy will be devoted to keeping a liberal supply of funds available as long as the economy is still in something of a recession. But the pressures for higher yields will be there, and it will pay to keep an eye on them.

EXPERIMENT in adsorption: add tapes made with colloidal carbon to deteriorated oil; stir. Note that Carbon Black *adsorbs* impurities. Clear oil results. In Type CB Cable these carbon-black tapes purify oil by the same process.

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Heat and electrical stress . . . heat and electrical stress . . . keep it up long enough and insulating oil in ordinary paper cable breaks down. The cable may have to be replaced.

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*CB — Carbon Black (U. S. Patents 2,102,129, 2,405,853) Reg. U. S. Pat. Off.

**F-3—Arsenic-Lead Alloy (U. S. Patents 2,300,788, 2,375,755, 2,504,600 and 2,570,501) Reg. U. S. Pat. Off.

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Service and overhead distribution cables, bare and weatherproof, including ACSR • signal, control and communication cable • portable cords and cables • network cables • airport and series lighting cables • mine cables • magnet wire • copper, aluminum and copperweld conductors • wire and cable accessories.

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VAULT AFTER

Cuts space needs in half!

New Vault-Type Power Unit Ideal for Shopping Centers

ALLIS-CHALMERS NEW vault-type power unit provides three or four standard distribution transformer core and coil assemblies plus metering transformers in a single, submersible-type tank. The units are so compact that a complete vault-type power unit takes only half the space of a bank of three single-phase distribution transformers.

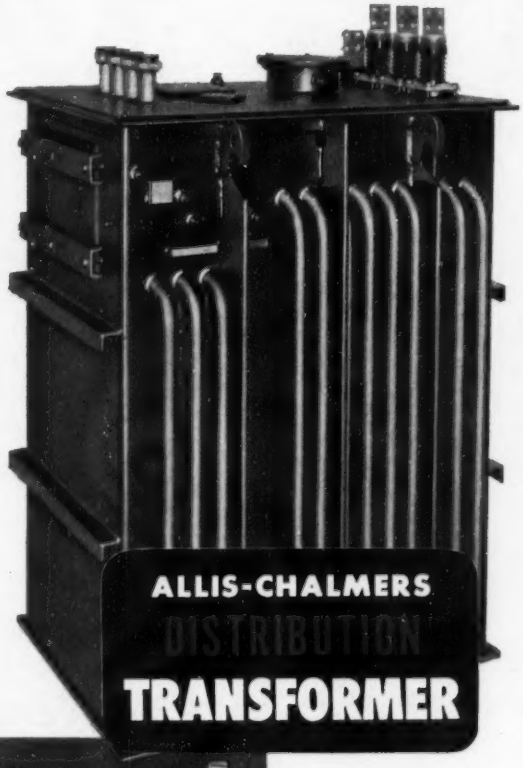
The new unit can be designed to supply three-phase power or three-phase power and single-phase lighting loads. It is the ideal answer to the space problem in areas like schools, hospitals, large apartment houses or where increased use of air conditioning or other large appliances is causing loads to grow fast.

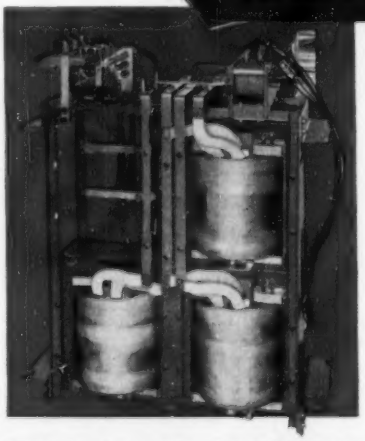
Simplified Installation

Allis-Chalmers vault-type power units can be installed either underground or in buildings. Core and coil assemblies are internally connected at the factory and leads are terminated at the cover. This reduces installation time and expense by eliminating primary and secondary bus work.

Get complete information on the space-saving advantages of Allis-Chalmers new vault-type power units. Consult the A-C office nearest you or write Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4426





TEMPORARY CLAMPS seal HV access panel until installation. After final system connections are made, panel is welded into position. All other covers are weld-sealed. Special paint and compound protect case. Space is provided for an additional core and coil assembly to change a three-phase unit into a combination single-/three-phase unit.

A-C ALLIS-CHALMERS

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